

WEBVTT

NOTE duration:"00:48:45"

NOTE recognizability:0.825

NOTE language:en-us

NOTE Confidence: 0.875270746333334

00:00:04.240 --> 00:00:05.390 We can jump into this,

NOTE Confidence: 0.875270746333334

00:00:05.390 --> 00:00:07.668 and I think the first thing I want to do

NOTE Confidence: 0.875270746333334

00:00:07.668 --> 00:00:09.950 is just present to you a little bit of

NOTE Confidence: 0.875270746333334

00:00:09.950 --> 00:00:11.678 information that we've been looking at.

NOTE Confidence: 0.875270746333334

00:00:11.680 --> 00:00:13.636 This is an interesting mixed group.

NOTE Confidence: 0.875270746333334

00:00:13.640 --> 00:00:15.596 There's some people in this group

NOTE Confidence: 0.875270746333334

00:00:15.600 --> 00:00:17.496 who have had a syndrome that

NOTE Confidence: 0.875270746333334

00:00:17.496 --> 00:00:18.760 emerged after the vaccination.

NOTE Confidence: 0.875270746333334

00:00:18.760 --> 00:00:20.622 There's some people in this group who

NOTE Confidence: 0.875270746333334

00:00:20.622 --> 00:00:23.230 have had a family of symptoms emerge

NOTE Confidence: 0.875270746333334

00:00:23.230 --> 00:00:25.800 after having been infected with COVID.

NOTE Confidence: 0.875270746333334

00:00:25.800 --> 00:00:28.736 And of course the people who who have

NOTE Confidence: 0.875270746333334

00:00:28.736 --> 00:00:31.040 symptoms emerged after the vaccination.

NOTE Confidence: 0.875270746333334

00:00:31.040 --> 00:00:33.091 We, you know, we think that that's
NOTE Confidence: 0.875270746333334

00:00:33.091 --> 00:00:34.480 that's not viral persistence,
NOTE Confidence: 0.875270746333334

00:00:34.480 --> 00:00:36.880 that's something else that's going on.
NOTE Confidence: 0.875270746333334

00:00:36.880 --> 00:00:38.038 And and for people along COVID,
NOTE Confidence: 0.875270746333334

00:00:38.040 --> 00:00:39.324 we think they're at least some
NOTE Confidence: 0.875270746333334

00:00:39.324 --> 00:00:40.870 people that you know emerging thing
NOTE Confidence: 0.875270746333334

00:00:40.870 --> 00:00:42.158 that's about viral persistence.
NOTE Confidence: 0.875270746333334

00:00:42.160 --> 00:00:44.937 So one of the questions has been well
NOTE Confidence: 0.875270746333334

00:00:44.937 --> 00:00:47.633 but a lot of the symptoms sound similar.
NOTE Confidence: 0.875270746333334

00:00:47.640 --> 00:00:49.976 You know we've now got a group that's
NOTE Confidence: 0.875270746333334

00:00:49.976 --> 00:00:51.759 substantial with both groups together.
NOTE Confidence: 0.875270746333334

00:00:51.760 --> 00:00:53.848 You know they each have different
NOTE Confidence: 0.875270746333334

00:00:53.848 --> 00:00:55.644 interests and their different challenges,
NOTE Confidence: 0.875270746333334

00:00:55.644 --> 00:00:59.644 but I think in the in the minds of people
NOTE Confidence: 0.875270746333334

00:00:59.644 --> 00:01:02.192 in society then they sometimes get them
NOTE Confidence: 0.875270746333334

00:01:02.192 --> 00:01:03.440 confused. Are these the same thing?

NOTE Confidence: 0.875270746333334
00:01:03.440 --> 00:01:04.468 Are they different? What?
NOTE Confidence: 0.875270746333334
00:01:04.468 --> 00:01:05.239 What is it?
NOTE Confidence: 0.875270746333334
00:01:05.240 --> 00:01:06.928 And one thing we want to ask was
NOTE Confidence: 0.875270746333334
00:01:06.928 --> 00:01:08.600 if you look at the responses,
NOTE Confidence: 0.875270746333334
00:01:08.600 --> 00:01:10.696 particularly on the symptoms,
NOTE Confidence: 0.875270746333334
00:01:10.696 --> 00:01:13.316 could we differentiate the groups?
NOTE Confidence: 0.875270746333334
00:01:13.320 --> 00:01:14.152 You know it it.
NOTE Confidence: 0.875270746333334
00:01:14.152 --> 00:01:15.717 Do the groups all look the same
NOTE Confidence: 0.875270746333334
00:01:15.717 --> 00:01:17.523 or is this are these two different
NOTE Confidence: 0.875270746333334
00:01:17.523 --> 00:01:19.240 groups based on the symptom complex,
NOTE Confidence: 0.875270746333334
00:01:19.240 --> 00:01:20.548 the self reported symptoms?
NOTE Confidence: 0.875270746333334
00:01:20.548 --> 00:01:23.478 So I wanted to also say that our team,
NOTE Confidence: 0.875270746333334
00:01:23.480 --> 00:01:24.640 we have some remarkable medical
NOTE Confidence: 0.875270746333334
00:01:24.640 --> 00:01:25.800 students who have joined us,
NOTE Confidence: 0.875270746333334
00:01:25.800 --> 00:01:26.838 which I think is really great,
NOTE Confidence: 0.875270746333334

00:01:26.840 --> 00:01:28.754 you know medical students who are
NOTE Confidence: 0.875270746333334

00:01:28.754 --> 00:01:30.479 contributing so importantly to this and
NOTE Confidence: 0.875270746333334

00:01:30.480 --> 00:01:33.880 and aren't afraid of the challenges
NOTE Confidence: 0.875270746333334

00:01:33.880 --> 00:01:36.960 of trying to learn in an area that's
NOTE Confidence: 0.875270746333334

00:01:36.960 --> 00:01:39.438 that's so formative so early still.
NOTE Confidence: 0.875270746333334

00:01:39.440 --> 00:01:42.545 And so I wanted to and an undergraduate,
NOTE Confidence: 0.875270746333334

00:01:42.545 --> 00:01:44.720 Rishi Shaw's an undergraduate actually
NOTE Confidence: 0.875270746333334

00:01:44.720 --> 00:01:46.267 who's joined us a very talented people
NOTE Confidence: 0.875270746333334

00:01:46.267 --> 00:01:47.838 who've been are sort of part of this.
NOTE Confidence: 0.875270746333334

00:01:47.840 --> 00:01:49.240 And so let me just turn it over to you,
NOTE Confidence: 0.875270746333334

00:01:49.240 --> 00:01:49.530 Rishi,
NOTE Confidence: 0.875270746333334

00:01:49.530 --> 00:01:51.560 and maybe can set up this study.
NOTE Confidence: 0.875270746333334

00:01:51.560 --> 00:01:56.120 And then Lula Wu's actually Biostatistics
NOTE Confidence: 0.76084433

00:01:58.640 --> 00:01:59.704 concentration in the school,
NOTE Confidence: 0.76084433

00:01:59.704 --> 00:02:01.164 public health, getting a master's degree
NOTE Confidence: 0.76084433

00:02:01.164 --> 00:02:03.199 on her way to then going to get a PhD.

NOTE Confidence: 0.76084433

00:02:03.200 --> 00:02:05.736 She'll present a little bit and then out

NOTE Confidence: 0.76084433

00:02:05.736 --> 00:02:09.600 of the room who's is a medical student is

NOTE Confidence: 0.76084433

00:02:09.600 --> 00:02:11.000 is going to present a little bit also.

NOTE Confidence: 0.76084433

00:02:11.000 --> 00:02:12.593 Then we'll have a little bit of a discussion.

NOTE Confidence: 0.76084433

00:02:12.600 --> 00:02:14.360 But we're trying to keep this maybe like

NOTE Confidence: 0.76084433

00:02:14.360 --> 00:02:16.061 15 minutes just to kind of give you guys

NOTE Confidence: 0.76084433

00:02:16.061 --> 00:02:17.880 a taste of something we were looking at.

NOTE Confidence: 0.76084433

00:02:17.880 --> 00:02:19.959 So Rishi, why don't you go ahead.

NOTE Confidence: 0.955441666666667

00:02:20.400 --> 00:02:21.360 Yeah, definitely.

NOTE Confidence: 0.955441666666667

00:02:21.360 --> 00:02:23.720 Thank you so much. Yeah.

NOTE Confidence: 0.955441666666667

00:02:23.720 --> 00:02:27.120 So like Doctor Kamal's mentioned,

NOTE Confidence: 0.955441666666667

00:02:27.120 --> 00:02:28.513 there are a lot of ongoing efforts

NOTE Confidence: 0.955441666666667

00:02:28.513 --> 00:02:29.783 right now in the listen project

NOTE Confidence: 0.955441666666667

00:02:29.783 --> 00:02:31.239 and this is just one of those.

NOTE Confidence: 0.955441666666667

00:02:31.240 --> 00:02:32.892 And so we're going to be talking

NOTE Confidence: 0.955441666666667

00:02:32.892 --> 00:02:34.586 about today is this project where
NOTE Confidence: 0.955441666666667

00:02:34.586 --> 00:02:36.452 we've been trying to compare the
NOTE Confidence: 0.955441666666667

00:02:36.452 --> 00:02:37.906 phenotypes between listen participants
NOTE Confidence: 0.955441666666667

00:02:37.906 --> 00:02:40.078 that have long COVID and listen
NOTE Confidence: 0.955441666666667

00:02:40.078 --> 00:02:41.880 participants have something that we've
NOTE Confidence: 0.955441666666667

00:02:41.880 --> 00:02:43.320 termed post vaccination syndrome,
NOTE Confidence: 0.955441666666667

00:02:43.320 --> 00:02:46.640 which you may remember as a vaccine injury.
NOTE Confidence: 0.955441666666667

00:02:46.640 --> 00:02:48.506 And so the question driving and
NOTE Confidence: 0.955441666666667

00:02:48.506 --> 00:02:50.400 motivating this project is what are
NOTE Confidence: 0.955441666666667

00:02:50.400 --> 00:02:52.357 the similarities and differences among
NOTE Confidence: 0.955441666666667

00:02:52.357 --> 00:02:54.552 listen participants with either long
NOTE Confidence: 0.955441666666667

00:02:54.552 --> 00:02:57.200 COVID or post vaccination syndrome.
NOTE Confidence: 0.955441666666667

00:02:57.200 --> 00:02:59.720 And so we've explored this by first
NOTE Confidence: 0.955441666666667

00:02:59.720 --> 00:03:01.850 talking about how we define long
NOTE Confidence: 0.955441666666667

00:03:01.850 --> 00:03:03.880 COVID and post vaccination syndrome.
NOTE Confidence: 0.955441666666667

00:03:03.880 --> 00:03:05.464 And so you may remember from

NOTE Confidence: 0.955441666666667
00:03:05.464 --> 00:03:07.180 your listen survey that we asked
NOTE Confidence: 0.955441666666667
00:03:07.180 --> 00:03:08.396 the self reported question,
NOTE Confidence: 0.955441666666667
00:03:08.400 --> 00:03:09.835 do you think you have long COVID?
NOTE Confidence: 0.955441666666667
00:03:09.840 --> 00:03:12.864 And these are symptoms of of COVID
NOTE Confidence: 0.955441666666667
00:03:12.864 --> 00:03:15.600 infection that persist 4 weeks or longer.
NOTE Confidence: 0.955441666666667
00:03:15.600 --> 00:03:17.536 This new term that you may not be
NOTE Confidence: 0.955441666666667
00:03:17.536 --> 00:03:19.224 familiar with this post vaccination
NOTE Confidence: 0.955441666666667
00:03:19.224 --> 00:03:21.134 syndrome and post vaccination syndrome
NOTE Confidence: 0.955441666666667
00:03:21.134 --> 00:03:22.878 is synonymous to vaccine injury.
NOTE Confidence: 0.955441666666667
00:03:22.880 --> 00:03:24.777 So you may have seen this term
NOTE Confidence: 0.955441666666667
00:03:24.777 --> 00:03:26.484 vaccine injury on your survey and
NOTE Confidence: 0.955441666666667
00:03:26.484 --> 00:03:28.560 so this was defined by the self
NOTE Confidence: 0.955441666666667
00:03:28.560 --> 00:03:30.120 reported response to the question,
NOTE Confidence: 0.955441666666667
00:03:30.120 --> 00:03:31.608 Do you think that you were
NOTE Confidence: 0.955441666666667
00:03:31.608 --> 00:03:32.600 injured by the vaccine
NOTE Confidence: 0.81506453

00:03:33.120 --> 00:03:34.702 And and just to say, I mean we've
NOTE Confidence: 0.81506453

00:03:34.702 --> 00:03:36.079 sort of using this as a term of art,
NOTE Confidence: 0.81506453

00:03:36.080 --> 00:03:37.598 but we're not, I don't know
NOTE Confidence: 0.81506453

00:03:37.598 --> 00:03:39.158 whether it'll be picked up or not,
NOTE Confidence: 0.81506453

00:03:39.160 --> 00:03:41.208 but we're just using it as a as a as a way
NOTE Confidence: 0.81506453

00:03:41.208 --> 00:03:42.840 to express what this group is right now.
NOTE Confidence: 0.81506453

00:03:42.840 --> 00:03:43.920 Go ahead, keep going. Sorry.
NOTE Confidence: 0.693837091428572

00:03:47.240 --> 00:03:49.914 So we've in our participants from Listen,
NOTE Confidence: 0.693837091428572

00:03:49.920 --> 00:03:51.756 we found similar characteristics
NOTE Confidence: 0.693837091428572

00:03:51.756 --> 00:03:54.051 in demographics between the long
NOTE Confidence: 0.693837091428572

00:03:54.051 --> 00:03:56.911 COVID groups and the PBS or post
NOTE Confidence: 0.693837091428572

00:03:56.911 --> 00:03:58.075 vaccination syndrome group.
NOTE Confidence: 0.693837091428572

00:03:58.080 --> 00:04:01.056 And the medium age for the long COVID
NOTE Confidence: 0.693837091428572

00:04:01.056 --> 00:04:04.008 participants was 46 years old with
NOTE Confidence: 0.693837091428572

00:04:04.008 --> 00:04:07.056 74% identified themselves as females
NOTE Confidence: 0.693837091428572

00:04:07.056 --> 00:04:10.440 and 86% of them identified as white,

NOTE Confidence: 0.693837091428572

00:04:10.440 --> 00:04:13.394 while in the PBS group the median

NOTE Confidence: 0.693837091428572

00:04:13.394 --> 00:04:17.166 age was 46 years old with 80% of

NOTE Confidence: 0.693837091428572

00:04:17.166 --> 00:04:19.596 them identified as females and

NOTE Confidence: 0.693837091428572

00:04:19.600 --> 00:04:21.236 87% identified as white.

NOTE Confidence: 0.693837091428572

00:04:21.236 --> 00:04:23.690 We did not find any significant

NOTE Confidence: 0.693837091428572

00:04:23.765 --> 00:04:26.646 difference in age, race and ethnicities.

NOTE Confidence: 0.693837091428572

00:04:26.646 --> 00:04:29.778 We did not find any significant

NOTE Confidence: 0.693837091428572

00:04:29.778 --> 00:04:32.397 differences either in marital status,

NOTE Confidence: 0.693837091428572

00:04:32.400 --> 00:04:34.660 pre pandemic employment status or

NOTE Confidence: 0.693837091428572

00:04:34.660 --> 00:04:36.920 pre pandemic household income status.

NOTE Confidence: 0.837411162666667

00:04:39.800 --> 00:04:42.338 So we found many similarities and

NOTE Confidence: 0.837411162666667

00:04:42.338 --> 00:04:44.546 differences in some differences in

NOTE Confidence: 0.837411162666667

00:04:44.546 --> 00:04:46.318 the pre pandemic comorbidities.

NOTE Confidence: 0.837411162666667

00:04:46.320 --> 00:04:48.028 In the two groups,

NOTE Confidence: 0.837411162666667

00:04:48.028 --> 00:04:50.590 we found that the participants with

NOTE Confidence: 0.837411162666667

00:04:50.671 --> 00:04:53.436 long COVID were more likely to have
NOTE Confidence: 0.837411162666667

00:04:53.440 --> 00:04:58.000 MECFS or My Myeloid and Syphilis
NOTE Confidence: 0.837411162666667

00:04:58.000 --> 00:05:03.428 chronic fatigue syndrome with 9019%
NOTE Confidence: 0.837411162666667

00:05:03.428 --> 00:05:06.924 in the long COVID groups versus 12% in
NOTE Confidence: 0.837411162666667

00:05:06.924 --> 00:05:09.834 the post vaccination syndrome groups.
NOTE Confidence: 0.837411162666667

00:05:09.840 --> 00:05:12.800 And they are all they were also more
NOTE Confidence: 0.837411162666667

00:05:12.800 --> 00:05:15.436 likely to have depressive disorders
NOTE Confidence: 0.837411162666667

00:05:15.436 --> 00:05:18.344 with 28% in the long COVID groups
NOTE Confidence: 0.837411162666667

00:05:18.344 --> 00:05:21.140 while in with 20% in the PBS groups.
NOTE Confidence: 0.837411162666667

00:05:21.140 --> 00:05:22.400 On the other hand,
NOTE Confidence: 0.837411162666667

00:05:22.400 --> 00:05:24.625 the post vaccine syndrome participants
NOTE Confidence: 0.837411162666667

00:05:24.625 --> 00:05:27.464 were more likely to have the M
NOTE Confidence: 0.837411162666667

00:05:27.464 --> 00:05:29.608 cast or in the full name is mass
NOTE Confidence: 0.837411162666667

00:05:29.687 --> 00:05:31.879 mast cell activation syndromes.
NOTE Confidence: 0.837411162666667

00:05:31.880 --> 00:05:36.556 It was 12% while only while 7%
NOTE Confidence: 0.837411162666667

00:05:36.560 --> 00:05:39.092 of the participants in long COVID

NOTE Confidence: 0.837411162666667
00:05:39.092 --> 00:05:40.358 had this comodibilities.
NOTE Confidence: 0.837411162666667
00:05:40.360 --> 00:05:42.488 The participants with prospects
NOTE Confidence: 0.837411162666667
00:05:42.488 --> 00:05:45.148 and syndrome syndrome were also
NOTE Confidence: 0.837411162666667
00:05:45.148 --> 00:05:47.988 more likely to have neurological
NOTE Confidence: 0.837411162666667
00:05:47.988 --> 00:05:50.212 conditions include including a
NOTE Confidence: 0.837411162666667
00:05:50.212 --> 00:05:52.708 spectrums of medical conditions
NOTE Confidence: 0.837411162666667
00:05:52.708 --> 00:05:55.793 including dementia dementia and almost
NOTE Confidence: 0.837411162666667
00:05:55.793 --> 00:05:58.631 1/3 of the participants with PBS
NOTE Confidence: 0.837411162666667
00:05:58.631 --> 00:06:01.800 had this pre pandemics comorbidity
NOTE Confidence: 0.861142146521739
00:06:03.520 --> 00:06:05.293 and and just just to say on this again
NOTE Confidence: 0.861142146521739
00:06:05.293 --> 00:06:07.443 I think the main point was these groups
NOTE Confidence: 0.861142146521739
00:06:07.443 --> 00:06:09.399 were very similar on their demographics.
NOTE Confidence: 0.861142146521739
00:06:09.400 --> 00:06:11.384 Imagine, I I don't know that you could
NOTE Confidence: 0.861142146521739
00:06:11.384 --> 00:06:13.080 have even designed it like this.
NOTE Confidence: 0.861142146521739
00:06:13.080 --> 00:06:15.726 Exactly the same mean age and
NOTE Confidence: 0.861142146521739

00:06:15.726 --> 00:06:16.956 and pretty much, you know,
NOTE Confidence: 0.861142146521739

00:06:16.960 --> 00:06:19.746 very similar sex distribution
NOTE Confidence: 0.861142146521739

00:06:19.746 --> 00:06:21.638 and very similar comorbidities,
NOTE Confidence: 0.861142146521739

00:06:21.640 --> 00:06:24.444 except for the few that she's mentioning.
NOTE Confidence: 0.861142146521739

00:06:24.444 --> 00:06:27.398 But but actually the groups look pre,
NOTE Confidence: 0.861142146521739

00:06:27.400 --> 00:06:28.008 Pandemic, Pre,
NOTE Confidence: 0.861142146521739

00:06:28.008 --> 00:06:29.832 all the stuff that's been going
NOTE Confidence: 0.861142146521739

00:06:29.832 --> 00:06:31.677 on look to be pretty similar.
NOTE Confidence: 0.861142146521739

00:06:31.680 --> 00:06:32.679 That was interesting.
NOTE Confidence: 0.6936738

00:06:36.680 --> 00:06:37.888 Speaking of more, there was
NOTE Confidence: 0.6936738

00:06:37.888 --> 00:06:39.340 a question I was asked on
NOTE Confidence: 0.818683098

00:06:39.395 --> 00:06:41.320 the survey regarding health status,
NOTE Confidence: 0.818683098

00:06:41.320 --> 00:06:43.532 and this was assessed using the Euro
NOTE Confidence: 0.818683098

00:06:43.532 --> 00:06:45.759 quality of life visual analog score.
NOTE Confidence: 0.818683098

00:06:45.760 --> 00:06:47.620 So participants were asked to rank
NOTE Confidence: 0.818683098

00:06:47.620 --> 00:06:50.228 on a scale of zero to 100 how how

NOTE Confidence: 0.818683098

00:06:50.228 --> 00:06:51.698 they would best characterize their

NOTE Confidence: 0.818683098

00:06:51.698 --> 00:06:53.815 health at the time of survey where

NOTE Confidence: 0.818683098

00:06:53.815 --> 00:06:55.579 0 indicated the worst health status

NOTE Confidence: 0.818683098

00:06:55.638 --> 00:06:57.479 and 100 was the best health status.

NOTE Confidence: 0.818683098

00:06:57.480 --> 00:06:59.741 So again we've shown here the curves

NOTE Confidence: 0.818683098

00:06:59.741 --> 00:07:02.121 for both LC which is long COVID

NOTE Confidence: 0.818683098

00:07:02.121 --> 00:07:04.137 and VI which is vaccine injury

NOTE Confidence: 0.818683098

00:07:04.209 --> 00:07:06.157 or post vaccination syndrome.

NOTE Confidence: 0.818683098

00:07:06.160 --> 00:07:08.456 And again the point to emphasize here

NOTE Confidence: 0.818683098

00:07:08.456 --> 00:07:11.016 is that both groups exhibited similar

NOTE Confidence: 0.818683098

00:07:11.016 --> 00:07:13.860 health status on the medians were

NOTE Confidence: 0.818683098

00:07:13.941 --> 00:07:15.956 very close to 5054 the vaccine injury

NOTE Confidence: 0.818683098

00:07:15.956 --> 00:07:18.199 group and 49 for the long COVID group.

NOTE Confidence: 0.818683098

00:07:18.200 --> 00:07:19.256 And so again,

NOTE Confidence: 0.818683098

00:07:19.256 --> 00:07:22.960 both group had similar health status.

NOTE Confidence: 0.818683098

00:07:22.960 --> 00:07:25.192 Another metric that we used to kind of
NOTE Confidence: 0.818683098

00:07:25.192 --> 00:07:27.317 assess health status was symptom severity.
NOTE Confidence: 0.818683098

00:07:27.320 --> 00:07:29.344 And so this was asked as a question
NOTE Confidence: 0.818683098

00:07:29.344 --> 00:07:31.395 of we were trying to understand
NOTE Confidence: 0.818683098

00:07:31.395 --> 00:07:32.875 how your symptoms are,
NOTE Confidence: 0.818683098

00:07:32.880 --> 00:07:34.490 how bad your symptoms are on the
NOTE Confidence: 0.818683098

00:07:34.490 --> 00:07:35.918 worst day that you feel them.
NOTE Confidence: 0.818683098

00:07:35.920 --> 00:07:39.169 And so this is sort of a flipped scale
NOTE Confidence: 0.818683098

00:07:39.169 --> 00:07:41.412 where zero meant your your condition
NOTE Confidence: 0.818683098

00:07:41.412 --> 00:07:43.680 was a trivial illness and 100 meant
NOTE Confidence: 0.818683098

00:07:43.738 --> 00:07:45.798 that your symptoms were unbearable.
NOTE Confidence: 0.818683098

00:07:45.800 --> 00:07:47.543 And so we can kind of see
NOTE Confidence: 0.818683098

00:07:47.543 --> 00:07:48.600 the skewed distribution here.
NOTE Confidence: 0.818683098

00:07:48.600 --> 00:07:49.240 And again,
NOTE Confidence: 0.818683098

00:07:49.240 --> 00:07:51.480 the point to emphasize here is that
NOTE Confidence: 0.818683098

00:07:51.480 --> 00:07:53.425 both participants from the long

NOTE Confidence: 0.818683098

00:07:53.425 --> 00:07:55.759 COVID cohort and the vaccine injury

NOTE Confidence: 0.818683098

00:07:55.829 --> 00:07:58.325 cohort have similarly high levels of

NOTE Confidence: 0.818683098

00:07:58.325 --> 00:08:00.800 symptom severity around the 8082 mark.

NOTE Confidence: 0.816598472777778

00:08:03.600 --> 00:08:07.100 So this is a plot which in which all the

NOTE Confidence: 0.816598472777778

00:08:07.193 --> 00:08:10.213 significant significant differences in

NOTE Confidence: 0.816598472777778

00:08:10.213 --> 00:08:13.731 the percentage of participants experience

NOTE Confidence: 0.816598472777778

00:08:13.731 --> 00:08:16.677 symptoms between long COVID groups and

NOTE Confidence: 0.816598472777778

00:08:16.680 --> 00:08:20.000 the post vaccination syndrome groups.

NOTE Confidence: 0.816598472777778

00:08:20.000 --> 00:08:23.129 The the the direction towards the right

NOTE Confidence: 0.816598472777778

00:08:23.129 --> 00:08:25.967 means more participants with long COVID were

NOTE Confidence: 0.816598472777778

00:08:25.967 --> 00:08:28.880 more likely to have the death syndromes,

NOTE Confidence: 0.816598472777778

00:08:28.880 --> 00:08:31.280 and the directions toward the left

NOTE Confidence: 0.816598472777778

00:08:31.280 --> 00:08:33.280 means that participants with the

NOTE Confidence: 0.816598472777778

00:08:33.280 --> 00:08:35.280 post vaccination syndrome were more

NOTE Confidence: 0.816598472777778

00:08:35.280 --> 00:08:38.146 likely to have the symptoms the most.

NOTE Confidence: 0.816598472777778

00:08:38.146 --> 00:08:40.118 Like the most significant,
NOTE Confidence: 0.816598472777778

00:08:40.120 --> 00:08:42.980 significantly different syndrome for the
NOTE Confidence: 0.816598472777778

00:08:42.980 --> 00:08:46.600 long COVID participants were memory problems,
NOTE Confidence: 0.816598472777778

00:08:46.600 --> 00:08:48.916 change, sense of smell, brain fog,
NOTE Confidence: 0.816598472777778

00:08:48.920 --> 00:08:51.360 shortness of breath and cough.
NOTE Confidence: 0.816598472777778

00:08:51.360 --> 00:08:55.591 While people with the post vaccination
NOTE Confidence: 0.816598472777778

00:08:55.591 --> 00:08:58.417 syndrome were more likely to have
NOTE Confidence: 0.816598472777778

00:08:58.417 --> 00:09:00.053 burning sensations, neuropathy,
NOTE Confidence: 0.816598472777778

00:09:00.053 --> 00:09:01.439 internal vibration,
NOTE Confidence: 0.816598472777778

00:09:01.439 --> 00:09:03.518 numbness, and tinnitus
NOTE Confidence: 0.856080011666667

00:09:07.200 --> 00:09:09.714 we have these are some implications
NOTE Confidence: 0.856080011666667

00:09:09.714 --> 00:09:12.600 we have from our study results.
NOTE Confidence: 0.856080011666667

00:09:12.600 --> 00:09:15.204 The first one is that the listen
NOTE Confidence: 0.856080011666667

00:09:15.204 --> 00:09:17.447 participants with either long COVID
NOTE Confidence: 0.856080011666667

00:09:17.447 --> 00:09:20.092 or post vaccination syndrome have
NOTE Confidence: 0.856080011666667

00:09:20.092 --> 00:09:21.679 similar demographic characteristics.

NOTE Confidence: 0.856080011666667

00:09:21.680 --> 00:09:24.540 Both groups reported a spectrum

NOTE Confidence: 0.856080011666667

00:09:24.540 --> 00:09:27.400 of symptoms and overall lower

NOTE Confidence: 0.856080011666667

00:09:27.400 --> 00:09:30.478 and poor health status and lower

NOTE Confidence: 0.856080011666667

00:09:30.480 --> 00:09:32.280 the quality of life scores.

NOTE Confidence: 0.856080011666667

00:09:32.280 --> 00:09:34.330 And the most important symptoms

NOTE Confidence: 0.856080011666667

00:09:34.330 --> 00:09:36.380 that can differentiate the group

NOTE Confidence: 0.856080011666667

00:09:36.451 --> 00:09:38.119 seem to be the brain fog,

NOTE Confidence: 0.856080011666667

00:09:38.120 --> 00:09:39.840 the changed sense of smell,

NOTE Confidence: 0.856080011666667

00:09:39.840 --> 00:09:41.920 cough and burning sensations.

NOTE Confidence: 0.742062471428571

00:09:44.760 --> 00:09:47.018 Do you wanna talk a little bit about

NOTE Confidence: 0.742062471428571

00:09:47.018 --> 00:09:48.264 when we really tried to figure out

NOTE Confidence: 0.742062471428571

00:09:48.264 --> 00:09:49.320 whether we could differentiate

NOTE Confidence: 0.79370928875

00:09:51.600 --> 00:09:55.520 so kind of as Lilo had pointed out that

NOTE Confidence: 0.79370928875

00:09:55.520 --> 00:09:57.720 there are these differences between

NOTE Confidence: 0.79370928875

00:09:57.720 --> 00:10:00.096 folks who who who sort of had post

NOTE Confidence: 0.79370928875

00:10:00.096 --> 00:10:01.559 vaccination syndrome and long COVID.
NOTE Confidence: 0.79370928875

00:10:01.560 --> 00:10:03.448 And and one of the questions is is
NOTE Confidence: 0.79370928875

00:10:03.448 --> 00:10:05.494 sort of can we differentiate and and
NOTE Confidence: 0.79370928875

00:10:05.494 --> 00:10:07.713 what are the symptoms you know that
NOTE Confidence: 0.79370928875

00:10:07.713 --> 00:10:09.313 sort of identify whether someone
NOTE Confidence: 0.79370928875

00:10:09.313 --> 00:10:11.171 has long COVID or someone someone
NOTE Confidence: 0.79370928875

00:10:11.171 --> 00:10:12.359 has post vaccination syndrome.
NOTE Confidence: 0.79370928875

00:10:12.360 --> 00:10:15.376 And and sort of to get at this we put
NOTE Confidence: 0.79370928875

00:10:15.376 --> 00:10:17.016 together a machine learning model
NOTE Confidence: 0.79370928875

00:10:17.016 --> 00:10:19.323 that sort of identified you know a
NOTE Confidence: 0.79370928875

00:10:19.323 --> 00:10:21.665 set of of eight symptoms that together
NOTE Confidence: 0.79370928875

00:10:21.665 --> 00:10:24.346 when you sort of consider their their
NOTE Confidence: 0.79370928875

00:10:24.346 --> 00:10:26.380 overall pattern in in a given patient
NOTE Confidence: 0.79370928875

00:10:26.380 --> 00:10:28.647 are able to sort of predict whether
NOTE Confidence: 0.79370928875

00:10:28.647 --> 00:10:30.955 someone is sort of experiencing long
NOTE Confidence: 0.79370928875

00:10:30.955 --> 00:10:33.025 COVID or post vaccination syndrome and

NOTE Confidence: 0.79370928875

00:10:33.025 --> 00:10:35.216 so kind of high and so so so these

NOTE Confidence: 0.79370928875

00:10:35.216 --> 00:10:36.873 eight symptoms that that that sort

NOTE Confidence: 0.79370928875

00:10:36.873 --> 00:10:38.811 of come together as this group are

NOTE Confidence: 0.79370928875

00:10:38.811 --> 00:10:41.584 are are are people who are brain fog,

NOTE Confidence: 0.79370928875

00:10:41.584 --> 00:10:43.696 palpitations memory problems sore

NOTE Confidence: 0.79370928875

00:10:43.696 --> 00:10:45.797 throat cough neuropathy burning

NOTE Confidence: 0.79370928875

00:10:45.797 --> 00:10:48.877 sensations and a changed sense of smell.

NOTE Confidence: 0.79370928875

00:10:48.880 --> 00:10:52.024 And so I I I think the important thing

NOTE Confidence: 0.79370928875

00:10:52.024 --> 00:10:53.720 to to take away from here is that

NOTE Confidence: 0.79370928875

00:10:53.772 --> 00:10:55.080 you know we're we're able to sort

NOTE Confidence: 0.79370928875

00:10:55.080 --> 00:10:57.995 of have this combination of symptoms

NOTE Confidence: 0.79370928875

00:10:57.995 --> 00:10:59.972 that indicate whether someone is sort

NOTE Confidence: 0.79370928875

00:10:59.972 --> 00:11:01.592 of you know distinguishes whether

NOTE Confidence: 0.79370928875

00:11:01.592 --> 00:11:03.283 someone is experiencing long COVID

NOTE Confidence: 0.79370928875

00:11:03.283 --> 00:11:04.639 or post vaccination syndrome.

NOTE Confidence: 0.79370928875

00:11:04.640 --> 00:11:06.670 And and so the metric that we
NOTE Confidence: 0.79370928875

00:11:06.670 --> 00:11:08.120 use to quantify this is,
NOTE Confidence: 0.79370928875

00:11:08.120 --> 00:11:10.304 is it something called the area under the
NOTE Confidence: 0.79370928875

00:11:10.304 --> 00:11:12.374 curve And and that says that the metric
NOTE Confidence: 0.79370928875

00:11:12.374 --> 00:11:14.760 that here is that it has a value of .8.
NOTE Confidence: 0.79370928875

00:11:14.760 --> 00:11:17.565 And so it ranges from zero to 10.5,
NOTE Confidence: 0.79370928875

00:11:17.565 --> 00:11:19.280 meaning that we sort of randomly say
NOTE Confidence: 0.79370928875

00:11:19.280 --> 00:11:21.090 that someone has long COVID or post
NOTE Confidence: 0.79370928875

00:11:21.090 --> 00:11:22.669 vaccination syndrome and one being that
NOTE Confidence: 0.79370928875

00:11:22.669 --> 00:11:24.223 we're able to perfectly distinguish and
NOTE Confidence: 0.79370928875

00:11:24.223 --> 00:11:26.038 .8 means that we're doing a pretty good job.
NOTE Confidence: 0.79370928875

00:11:26.040 --> 00:11:28.000 And so I think practically
NOTE Confidence: 0.79370928875

00:11:28.000 --> 00:11:29.200 that means that you know,
NOTE Confidence: 0.79370928875

00:11:29.200 --> 00:11:31.018 given someone's symptom profile and and
NOTE Confidence: 0.79370928875

00:11:31.018 --> 00:11:33.204 looking at these eight symptoms and sort
NOTE Confidence: 0.79370928875

00:11:33.204 --> 00:11:35.360 of combining them together in their totality,

NOTE Confidence: 0.79370928875

00:11:35.360 --> 00:11:37.187 there's an 80% chance that we're able

NOTE Confidence: 0.79370928875

00:11:37.187 --> 00:11:39.500 to sort of say that someone has long

NOTE Confidence: 0.79370928875

00:11:39.500 --> 00:11:41.400 COVID or post vaccination syndrome.

NOTE Confidence: 0.79370928875

00:11:41.400 --> 00:11:42.480 And I I,

NOTE Confidence: 0.79370928875

00:11:42.480 --> 00:11:44.874 I think this is just the beginning of

NOTE Confidence: 0.79370928875

00:11:44.874 --> 00:11:46.998 sort of us exploring kind of you know,

NOTE Confidence: 0.79370928875

00:11:47.000 --> 00:11:49.235 different modeling techniques and and

NOTE Confidence: 0.79370928875

00:11:49.235 --> 00:11:52.029 and different representations of of of

NOTE Confidence: 0.79370928875

00:11:52.029 --> 00:11:54.340 understanding folks who who have long

NOTE Confidence: 0.79370928875

00:11:54.340 --> 00:11:56.160 COVID or post vaccination syndrome.

NOTE Confidence: 0.79370928875

00:11:56.160 --> 00:11:56.400 Yeah.

NOTE Confidence: 0.849400985833333

00:11:58.840 --> 00:12:00.364 Yeah. I'll just, I'll just add

NOTE Confidence: 0.849400985833333

00:12:00.364 --> 00:12:01.920 a little color to that too.

NOTE Confidence: 0.849400985833333

00:12:01.920 --> 00:12:03.000 Thank you, Allison.

NOTE Confidence: 0.849400985833333

00:12:03.000 --> 00:12:05.700 And you really did a great job on

NOTE Confidence: 0.849400985833333

00:12:05.700 --> 00:12:06.960 many of the analysis that we did.
NOTE Confidence: 0.849400985833333

00:12:06.960 --> 00:12:08.720 So just imagine, you know,
NOTE Confidence: 0.849400985833333

00:12:08.720 --> 00:12:10.960 we've got this survey that you guys,
NOTE Confidence: 0.849400985833333

00:12:10.960 --> 00:12:13.160 many of you filled out that you
NOTE Confidence: 0.849400985833333

00:12:13.160 --> 00:12:15.080 know goes from top to bottom.
NOTE Confidence: 0.849400985833333

00:12:15.080 --> 00:12:16.436 I think there are 99 symptoms.
NOTE Confidence: 0.849400985833333

00:12:16.440 --> 00:12:18.565 And the question would be based
NOTE Confidence: 0.849400985833333

00:12:18.565 --> 00:12:20.755 on the pattern of your responses,
NOTE Confidence: 0.849400985833333

00:12:20.760 --> 00:12:23.154 if we didn't know which group you were in,
NOTE Confidence: 0.849400985833333

00:12:23.160 --> 00:12:24.685 could we predict which group
NOTE Confidence: 0.849400985833333

00:12:24.685 --> 00:12:28.885 you were in and and how how well
NOTE Confidence: 0.849400985833333

00:12:28.885 --> 00:12:32.080 could we be able to do that.
NOTE Confidence: 0.849400985833333

00:12:32.080 --> 00:12:36.085 And so it just turned out that that
NOTE Confidence: 0.849400985833333

00:12:36.085 --> 00:12:38.045 the model that we did based on the
NOTE Confidence: 0.849400985833333

00:12:38.045 --> 00:12:39.599 pattern of responses and and what
NOTE Confidence: 0.849400985833333

00:12:39.599 --> 00:12:41.464 some of what others is saying is

NOTE Confidence: 0.849400985833333
00:12:41.464 --> 00:12:43.403 what what were some of the most
NOTE Confidence: 0.849400985833333
00:12:43.403 --> 00:12:45.310 influential symptoms in being able to
NOTE Confidence: 0.849400985833333
00:12:45.310 --> 00:12:47.807 move people But but this takes into
NOTE Confidence: 0.849400985833333
00:12:47.807 --> 00:12:50.600 account the entire pattern of the responses.
NOTE Confidence: 0.849400985833333
00:12:50.600 --> 00:12:52.440 You know could we be able to differentiate
NOTE Confidence: 0.849400985833333
00:12:52.440 --> 00:12:54.080 and tell one group from the other.
NOTE Confidence: 0.849400985833333
00:12:54.080 --> 00:12:56.144 And in .8 it turns out like you
NOTE Confidence: 0.849400985833333
00:12:56.144 --> 00:12:58.320 said .5 is means it's coin flip.
NOTE Confidence: 0.849400985833333
00:12:58.320 --> 00:13:01.554 One is you perfectly can predict .8
NOTE Confidence: 0.849400985833333
00:13:01.560 --> 00:13:04.224 in in our in the world of prediction
NOTE Confidence: 0.849400985833333
00:13:04.224 --> 00:13:06.517 it's not bad it's pretty good.
NOTE Confidence: 0.849400985833333
00:13:06.520 --> 00:13:08.186 It mean it's much more likely than
NOTE Confidence: 0.849400985833333
00:13:08.186 --> 00:13:09.908 chance you know that you can tell
NOTE Confidence: 0.849400985833333
00:13:09.908 --> 00:13:11.336 which group somebody was in just
NOTE Confidence: 0.849400985833333
00:13:11.392 --> 00:13:12.916 by the pattern of the responses.
NOTE Confidence: 0.849400985833333

00:13:12.920 --> 00:13:14.756 Now we have to dig deeper to really try
NOTE Confidence: 0.8494009858333333

00:13:14.756 --> 00:13:16.720 to understand what are those patterns,
NOTE Confidence: 0.8494009858333333

00:13:16.720 --> 00:13:18.880 what might they mean?
NOTE Confidence: 0.8494009858333333

00:13:18.880 --> 00:13:20.160 You know,
NOTE Confidence: 0.8494009858333333

00:13:20.160 --> 00:13:24.624 I think my view of this is that they're
NOTE Confidence: 0.8494009858333333

00:13:24.624 --> 00:13:26.887 probably people within the living
NOTE Confidence: 0.8494009858333333

00:13:26.887 --> 00:13:29.329 with long COVID who have different
NOTE Confidence: 0.8494009858333333

00:13:29.329 --> 00:13:31.359 mechanisms of their long COVID.
NOTE Confidence: 0.8494009858333333

00:13:31.360 --> 00:13:31.969 And you know,
NOTE Confidence: 0.8494009858333333

00:13:31.969 --> 00:13:33.628 this goes back to Kiko's and I'm going
NOTE Confidence: 0.8494009858333333

00:13:33.628 --> 00:13:35.156 to refer over to her in a second.
NOTE Confidence: 0.8494009858333333

00:13:35.160 --> 00:13:36.120 You know her,
NOTE Confidence: 0.8494009858333333

00:13:36.120 --> 00:13:39.600 her theories of of long COVID and and that,
NOTE Confidence: 0.8494009858333333

00:13:39.600 --> 00:13:40.048 you know,
NOTE Confidence: 0.8494009858333333

00:13:40.048 --> 00:13:41.840 it's probably not all one or the other.
NOTE Confidence: 0.8494009858333333

00:13:41.840 --> 00:13:42.984 There's probably underneath that

NOTE Confidence: 0.849400985833333

00:13:42.984 --> 00:13:44.414 there's some people whose mechanism

NOTE Confidence: 0.849400985833333

00:13:44.414 --> 00:13:45.559 might be viral persistence.

NOTE Confidence: 0.849400985833333

00:13:45.560 --> 00:13:47.066 There might be other people that

NOTE Confidence: 0.849400985833333

00:13:47.066 --> 00:13:48.930 has to do with the spike protein

NOTE Confidence: 0.849400985833333

00:13:48.930 --> 00:13:51.065 or the other various different ways

NOTE Confidence: 0.849400985833333

00:13:51.065 --> 00:13:52.904 or reactivation of other viruses

NOTE Confidence: 0.849400985833333

00:13:52.904 --> 00:13:54.280 and and so forth.

NOTE Confidence: 0.849400985833333

00:13:54.280 --> 00:13:54.814 And so,

NOTE Confidence: 0.849400985833333

00:13:54.814 --> 00:13:56.683 you know that means that there are

NOTE Confidence: 0.849400985833333

00:13:56.683 --> 00:13:58.243 some mechanisms that might cross

NOTE Confidence: 0.849400985833333

00:13:58.243 --> 00:14:00.585 over the groups and and be similar

NOTE Confidence: 0.849400985833333

00:14:00.585 --> 00:14:02.765 because they're actually having the

NOTE Confidence: 0.849400985833333

00:14:02.765 --> 00:14:05.200 same underlying mechanism and some that are,

NOTE Confidence: 0.849400985833333

00:14:05.200 --> 00:14:05.760 are different.

NOTE Confidence: 0.849400985833333

00:14:05.760 --> 00:14:07.580 And that's why the work that's being

NOTE Confidence: 0.849400985833333

00:14:07.580 --> 00:14:09.584 done in the lab is so important
NOTE Confidence: 0.849400985833333

00:14:09.584 --> 00:14:12.379 because if we can now begin to start
NOTE Confidence: 0.849400985833333

00:14:12.379 --> 00:14:15.476 adding nuance and and clarity to like well,
NOTE Confidence: 0.849400985833333

00:14:15.480 --> 00:14:16.400 which one are you,
NOTE Confidence: 0.849400985833333

00:14:16.400 --> 00:14:18.112 you know what what is it that's
NOTE Confidence: 0.849400985833333

00:14:18.112 --> 00:14:20.058 causing it you which can provide a
NOTE Confidence: 0.849400985833333

00:14:20.058 --> 00:14:21.585 target for the intervention that
NOTE Confidence: 0.849400985833333

00:14:21.585 --> 00:14:23.720 might help to help you feel better.
NOTE Confidence: 0.849400985833333

00:14:23.720 --> 00:14:25.592 And so to me this is this is the
NOTE Confidence: 0.849400985833333

00:14:25.592 --> 00:14:27.304 first time you know what first I
NOTE Confidence: 0.849400985833333

00:14:27.304 --> 00:14:29.294 think it's one of the first studies
NOTE Confidence: 0.849400985833333

00:14:29.294 --> 00:14:31.232 that actually has both groups in
NOTE Confidence: 0.849400985833333

00:14:31.232 --> 00:14:33.510 together and they're both suffering and
NOTE Confidence: 0.849400985833333

00:14:33.510 --> 00:14:37.000 and in this population you all are in,
NOTE Confidence: 0.845431218823529

00:14:37.000 --> 00:14:38.776 those two groups are about the
NOTE Confidence: 0.845431218823529

00:14:38.776 --> 00:14:40.303 same Asian demographic and about

NOTE Confidence: 0.845431218823529
00:14:40.303 --> 00:14:42.037 the same before all this started.
NOTE Confidence: 0.845431218823529
00:14:42.040 --> 00:14:44.595 And now we've got the ability to
NOTE Confidence: 0.845431218823529
00:14:44.595 --> 00:14:47.325 actually we can say with advanced
NOTE Confidence: 0.845431218823529
00:14:47.325 --> 00:14:50.464 analytics based on on just your personal
NOTE Confidence: 0.845431218823529
00:14:50.464 --> 00:14:53.011 responses to a survey, we can pretty
NOTE Confidence: 0.845431218823529
00:14:53.011 --> 00:14:54.553 much tell which group you're in.
NOTE Confidence: 0.845431218823529
00:14:54.560 --> 00:14:56.657 And I think that starts to help us understand
NOTE Confidence: 0.845431218823529
00:14:56.657 --> 00:14:58.438 that that that where is that overlap.
NOTE Confidence: 0.845431218823529
00:14:58.440 --> 00:15:00.180 It's not perfect prediction and that
NOTE Confidence: 0.845431218823529
00:15:00.180 --> 00:15:02.017 tells me it's maybe because there's
NOTE Confidence: 0.845431218823529
00:15:02.017 --> 00:15:04.194 some people who are very similar and
NOTE Confidence: 0.845431218823529
00:15:04.194 --> 00:15:06.315 there's some people who are are different.
NOTE Confidence: 0.845431218823529
00:15:06.320 --> 00:15:08.240 But when you just look at it based
NOTE Confidence: 0.845431218823529
00:15:08.240 --> 00:15:09.599 on responses to the symptoms,
NOTE Confidence: 0.845431218823529
00:15:09.600 --> 00:15:12.360 you don't see it because everyone looks like,
NOTE Confidence: 0.845431218823529

00:15:12.360 --> 00:15:13.440 yeah, they're all,
NOTE Confidence: 0.845431218823529

00:15:13.440 --> 00:15:15.240 isn't everyone reporting more or
NOTE Confidence: 0.845431218823529

00:15:15.240 --> 00:15:16.956 less a lot of overlap of symptoms?
NOTE Confidence: 0.845431218823529

00:15:16.960 --> 00:15:17.548 They are.
NOTE Confidence: 0.845431218823529

00:15:17.548 --> 00:15:19.606 But when you look at the pattern
NOTE Confidence: 0.845431218823529

00:15:19.606 --> 00:15:22.009 of the symptoms that are reported
NOTE Confidence: 0.845431218823529

00:15:22.009 --> 00:15:23.233 by the individuals,
NOTE Confidence: 0.845431218823529

00:15:23.240 --> 00:15:25.946 you can begin to see patterns
NOTE Confidence: 0.845431218823529

00:15:25.946 --> 00:15:27.504 that are humanized,
NOTE Confidence: 0.845431218823529

00:15:27.504 --> 00:15:29.160 don't necessarily perceive.
NOTE Confidence: 0.845431218823529

00:15:29.160 --> 00:15:30.960 But that we have to be able to use some
NOTE Confidence: 0.845431218823529

00:15:31.014 --> 00:15:32.960 of these analytic approaches to tease out.
NOTE Confidence: 0.845431218823529

00:15:32.960 --> 00:15:34.772 And I would say that we're
NOTE Confidence: 0.845431218823529

00:15:34.772 --> 00:15:35.720 still trying to learn on this,
NOTE Confidence: 0.845431218823529

00:15:35.720 --> 00:15:36.758 but a lot of the folks,
NOTE Confidence: 0.845431218823529

00:15:36.760 --> 00:15:38.542 so you've you've heard from the

NOTE Confidence: 0.845431218823529
00:15:38.542 --> 00:15:40.310 students who are great but they're
NOTE Confidence: 0.845431218823529
00:15:40.310 --> 00:15:42.309 also backed up by you know very
NOTE Confidence: 0.845431218823529
00:15:42.309 --> 00:15:44.025 accomplished scientists who have
NOTE Confidence: 0.845431218823529
00:15:44.025 --> 00:15:46.664 a lot of experience with these
NOTE Confidence: 0.845431218823529
00:15:46.664 --> 00:15:48.676 things so that you know they're not,
NOTE Confidence: 0.845431218823529
00:15:48.680 --> 00:15:50.504 they're not out by themselves but
NOTE Confidence: 0.845431218823529
00:15:50.504 --> 00:15:52.320 they're being supported and and helped.
NOTE Confidence: 0.845431218823529
00:15:52.320 --> 00:15:52.782 So they're,
NOTE Confidence: 0.845431218823529
00:15:52.782 --> 00:15:54.960 you know I wanted to let them present today,
NOTE Confidence: 0.845431218823529
00:15:54.960 --> 00:15:57.039 but just know that that they've got,
NOTE Confidence: 0.845431218823529
00:15:57.040 --> 00:15:58.815 you know we've got outstanding
NOTE Confidence: 0.845431218823529
00:15:58.815 --> 00:16:00.235 data scientists behind them.
NOTE Confidence: 0.845431218823529
00:16:00.240 --> 00:16:02.632 And then I think that some of the
NOTE Confidence: 0.845431218823529
00:16:02.632 --> 00:16:04.523 interesting pieces will be also as as
NOTE Confidence: 0.845431218823529
00:16:04.523 --> 00:16:06.600 we're working in the lab to see whether
NOTE Confidence: 0.845431218823529

00:16:06.600 --> 00:16:08.520 or not of the deep immune phenotyping.
NOTE Confidence: 0.845431218823529

00:16:08.520 --> 00:16:10.914 Can we also predict based on the
NOTE Confidence: 0.845431218823529

00:16:10.920 --> 00:16:12.960 on the patterns of responses,
NOTE Confidence: 0.845431218823529

00:16:12.960 --> 00:16:15.396 you know which group would be which
NOTE Confidence: 0.845431218823529

00:16:15.400 --> 00:16:16.814 based on on the signals that are
NOTE Confidence: 0.845431218823529

00:16:16.814 --> 00:16:18.479 coming out of the immune phenotyping.
NOTE Confidence: 0.845431218823529

00:16:18.480 --> 00:16:19.800 But I I don't know,
NOTE Confidence: 0.845431218823529

00:16:19.800 --> 00:16:21.280 Akiko if you want to comment on what
NOTE Confidence: 0.845431218823529

00:16:21.280 --> 00:16:22.528 what you think about what you've
NOTE Confidence: 0.845431218823529

00:16:22.528 --> 00:16:24.159 heard or what's going on in the lab.
NOTE Confidence: 0.845431218823529

00:16:24.160 --> 00:16:25.960 I know Bernali's also been working
NOTE Confidence: 0.845431218823529

00:16:25.960 --> 00:16:28.396 very hard on, on some of this work.
NOTE Confidence: 0.8717686775

00:16:29.680 --> 00:16:32.360 Yeah. Thank you Harlan and thank you Rishi,
NOTE Confidence: 0.8717686775

00:16:32.360 --> 00:16:36.875 Lilo and Adith for this great presentation.
NOTE Confidence: 0.8717686775

00:16:36.880 --> 00:16:39.490 I think what what you're presenting
NOTE Confidence: 0.8717686775

00:16:39.490 --> 00:16:42.549 basically points to the fact that there

NOTE Confidence: 0.8717686775

00:16:42.549 --> 00:16:45.440 are combinations of symptoms that can be

NOTE Confidence: 0.8717686775

00:16:45.518 --> 00:16:48.246 helpful to distinguish these two diseases.

NOTE Confidence: 0.8717686775

00:16:48.246 --> 00:16:51.540 But we we know that you know there are

NOTE Confidence: 0.8717686775

00:16:51.620 --> 00:16:54.160 so many overlapping symptom between

NOTE Confidence: 0.8717686775

00:16:54.160 --> 00:16:57.085 these two conditions and that is why

NOTE Confidence: 0.8717686775

00:16:57.085 --> 00:17:00.415 I think we need to do a deep dive on

NOTE Confidence: 0.8717686775

00:17:00.415 --> 00:17:02.905 the biology and biological factors that

NOTE Confidence: 0.8717686775

00:17:02.905 --> 00:17:06.080 that might be overlapping or different,

NOTE Confidence: 0.8717686775

00:17:06.080 --> 00:17:08.408 we don't know yet.

NOTE Confidence: 0.8717686775

00:17:08.408 --> 00:17:11.676 We have collected some samples from many

NOTE Confidence: 0.8717686775

00:17:11.676 --> 00:17:14.840 of you that are attending today and we

NOTE Confidence: 0.8717686775

00:17:14.840 --> 00:17:17.840 have done some preliminary analysis.

NOTE Confidence: 0.8717686775

00:17:17.840 --> 00:17:20.120 We still need to do a lot more

NOTE Confidence: 0.8717686775

00:17:20.120 --> 00:17:23.760 different sort of analysis angles,

NOTE Confidence: 0.8717686775

00:17:23.760 --> 00:17:25.690 but we're gearing towards looking

NOTE Confidence: 0.8717686775

00:17:25.690 --> 00:17:26.848 at head to
NOTE Confidence: 0.919574783571429

00:17:35.960 --> 00:17:39.200 Just to kind of I know that many questions
NOTE Confidence: 0.919574783571429

00:17:39.200 --> 00:17:41.874 on the chat is really addressing the
NOTE Confidence: 0.919574783571429

00:17:41.874 --> 00:17:44.256 similarity and differences and what might
NOTE Confidence: 0.919574783571429

00:17:44.256 --> 00:17:47.078 be the hypothesis if I could just take
NOTE Confidence: 0.919574783571429

00:17:47.080 --> 00:17:51.600 one minute to maybe present a slide which
NOTE Confidence: 0.919574783571429

00:17:51.600 --> 00:17:54.984 I shared with you a few town halls ago.
NOTE Confidence: 0.919574783571429

00:17:54.984 --> 00:17:58.096 But I think it's the same concept
NOTE Confidence: 0.919574783571429

00:17:58.096 --> 00:18:02.592 still which is I don't know if you
NOTE Confidence: 0.919574783571429

00:18:02.592 --> 00:18:05.360 can see this but there is OK great,
NOTE Confidence: 0.919574783571429

00:18:05.360 --> 00:18:07.592 there is this remarkable overlap of
NOTE Confidence: 0.919574783571429

00:18:07.592 --> 00:18:10.058 symptoms and sex ratios for long COVID
NOTE Confidence: 0.919574783571429

00:18:10.058 --> 00:18:12.515 and this isn't even you know this is
NOTE Confidence: 0.919574783571429

00:18:12.515 --> 00:18:14.683 the prior way prior to the the nice
NOTE Confidence: 0.919574783571429

00:18:14.683 --> 00:18:16.480 work that was just presented today.
NOTE Confidence: 0.919574783571429

00:18:16.480 --> 00:18:18.976 But you know just by looking at the

NOTE Confidence: 0.919574783571429

00:18:18.976 --> 00:18:21.536 the the frequency of these symptoms,

NOTE Confidence: 0.919574783571429

00:18:21.536 --> 00:18:23.956 there are many overlapping ones.

NOTE Confidence: 0.919574783571429

00:18:23.960 --> 00:18:27.456 And so you know there are currently the

NOTE Confidence: 0.919574783571429

00:18:27.456 --> 00:18:30.397 hypothesis that I shared with you before,

NOTE Confidence: 0.919574783571429

00:18:30.400 --> 00:18:33.880 but I wanted to go over again because they

NOTE Confidence: 0.919574783571429

00:18:33.880 --> 00:18:37.240 they still stand as far as I'm concerned.

NOTE Confidence: 0.919574783571429

00:18:37.240 --> 00:18:40.775 So as you know that they're like

NOTE Confidence: 0.919574783571429

00:18:40.775 --> 00:18:42.848 these different hypothesis that

NOTE Confidence: 0.919574783571429

00:18:42.848 --> 00:18:45.638 are trying to explain long COVID,

NOTE Confidence: 0.919574783571429

00:18:45.640 --> 00:18:48.760 those include sort of persistent virus

NOTE Confidence: 0.919574783571429

00:18:48.760 --> 00:18:51.730 which may be overlapping with post

NOTE Confidence: 0.919574783571429

00:18:51.730 --> 00:18:55.092 vaccine with respect to persistent spike

NOTE Confidence: 0.919574783571429

00:18:55.092 --> 00:18:58.183 protein or persistent RNA presence that

NOTE Confidence: 0.919574783571429

00:18:58.183 --> 00:19:01.120 leads to innate immune activation and so on.

NOTE Confidence: 0.919574783571429

00:19:01.120 --> 00:19:05.440 There's also the possibility of autoimmunity

NOTE Confidence: 0.919574783571429

00:19:05.440 --> 00:19:09.017 and that can be triggered by both
NOTE Confidence: 0.919574783571429

00:19:09.017 --> 00:19:12.420 vaccination and COVID psoroscopy 2 infection.
NOTE Confidence: 0.919574783571429

00:19:12.420 --> 00:19:15.395 There's could be tissue damage,
NOTE Confidence: 0.919574783571429

00:19:15.400 --> 00:19:16.297 microclots,
NOTE Confidence: 0.919574783571429

00:19:16.297 --> 00:19:18.091 endothelial dysfunction.
NOTE Confidence: 0.919574783571429

00:19:18.091 --> 00:19:21.679 Again, you could theoretically,
NOTE Confidence: 0.919574783571429

00:19:21.680 --> 00:19:24.482 you know, conceive of both of
NOTE Confidence: 0.919574783571429

00:19:24.482 --> 00:19:26.880 these agents leading to that.
NOTE Confidence: 0.919574783571429

00:19:26.880 --> 00:19:29.580 And then of course EBV reactivation
NOTE Confidence: 0.919574783571429

00:19:29.580 --> 00:19:32.312 and other things that we've already
NOTE Confidence: 0.919574783571429

00:19:32.312 --> 00:19:35.290 seen in long COVID may be happening
NOTE Confidence: 0.919574783571429

00:19:35.290 --> 00:19:37.440 also in post vaccine syndrome.
NOTE Confidence: 0.919574783571429

00:19:37.440 --> 00:19:38.823 So you know,
NOTE Confidence: 0.919574783571429

00:19:38.823 --> 00:19:41.589 these are still the hypothesis and
NOTE Confidence: 0.919574783571429

00:19:41.589 --> 00:19:44.702 we should be able to test these
NOTE Confidence: 0.919574783571429

00:19:44.702 --> 00:19:48.304 with the biospecimen that you have

NOTE Confidence: 0.919574783571429

00:19:48.304 --> 00:19:50.480 generously provided, for instance,

NOTE Confidence: 0.919574783571429

00:19:50.480 --> 00:19:51.280 a virus,

NOTE Confidence: 0.919574783571429

00:19:51.280 --> 00:19:52.080 a vaccine,

NOTE Confidence: 0.919574783571429

00:19:52.080 --> 00:19:54.336 Stimulation of innate immune

NOTE Confidence: 0.919574783571429

00:19:54.336 --> 00:19:57.720 responses or tissue damage can be

NOTE Confidence: 0.919574783571429

00:19:57.720 --> 00:20:01.395 inferred to a large extent by looking

NOTE Confidence: 0.919574783571429

00:20:01.395 --> 00:20:04.920 at circulating immune factors.

NOTE Confidence: 0.919574783571429

00:20:04.920 --> 00:20:07.601 And we know what exactly the immune

NOTE Confidence: 0.919574783571429

00:20:07.601 --> 00:20:09.679 factors are downstream of inflammasome

NOTE Confidence: 0.919574783571429

00:20:09.679 --> 00:20:12.253 activation or RNA sensors which could

NOTE Confidence: 0.919574783571429

00:20:12.253 --> 00:20:14.438 be triggered by the vaccination.

NOTE Confidence: 0.919574783571429

00:20:14.440 --> 00:20:17.068 And it's interesting that we are

NOTE Confidence: 0.919574783571429

00:20:17.068 --> 00:20:20.089 seeing the onset of post vaccine

NOTE Confidence: 0.919574783571429

00:20:20.089 --> 00:20:22.105 syndrome very clustered around

NOTE Confidence: 0.919574783571429

00:20:22.105 --> 00:20:24.480 the first week of vaccination.

NOTE Confidence: 0.919574783571429

00:20:24.480 --> 00:20:25.080 Of course,
NOTE Confidence: 0.919574783571429

00:20:25.080 --> 00:20:26.280 there are some participants
NOTE Confidence: 0.919574783571429

00:20:26.280 --> 00:20:27.840 that develop it much later,
NOTE Confidence: 0.919574783571429

00:20:27.840 --> 00:20:30.626 but there is this large number of
NOTE Confidence: 0.919574783571429

00:20:30.626 --> 00:20:32.315 participants reporting post vaccine
NOTE Confidence: 0.919574783571429

00:20:32.315 --> 00:20:34.435 syndrome around the first week.
NOTE Confidence: 0.919574783571429

00:20:34.440 --> 00:20:37.392 So this leads us to think that it's
NOTE Confidence: 0.919574783571429

00:20:37.392 --> 00:20:39.526 not necessarily sort of antibody
NOTE Confidence: 0.919574783571429

00:20:39.526 --> 00:20:41.731 mediated because that's too early
NOTE Confidence: 0.919574783571429

00:20:41.731 --> 00:20:43.920 to develop these antibodies,
NOTE Confidence: 0.919574783571429

00:20:43.920 --> 00:20:46.356 but it could be innate immune
NOTE Confidence: 0.919574783571429

00:20:46.356 --> 00:20:48.800 activation or T cell mediated.
NOTE Confidence: 0.919574783571429

00:20:48.800 --> 00:20:51.170 The other possibilities that are
NOTE Confidence: 0.919574783571429

00:20:51.170 --> 00:20:54.620 listed here are the more dependent on
NOTE Confidence: 0.919574783571429

00:20:54.620 --> 00:20:57.680 adaptive immune responses and the only
NOTE Confidence: 0.919574783571429

00:20:57.680 --> 00:21:00.800 shared adaptive antigen is the spike.

NOTE Confidence: 0.919574783571429
00:21:00.800 --> 00:21:02.955 So it's possible that antibodies
NOTE Confidence: 0.919574783571429
00:21:02.955 --> 00:21:05.110 against a spike protein could
NOTE Confidence: 0.919574783571429
00:21:05.187 --> 00:21:07.412 form immune complex that could
NOTE Confidence: 0.919574783571429
00:21:07.412 --> 00:21:09.637 deposit onto different tissues or
NOTE Confidence: 0.919574783571429
00:21:09.714 --> 00:21:12.360 endothelial cells or form micro clots.
NOTE Confidence: 0.919574783571429
00:21:12.360 --> 00:21:15.013 And we are directly testing this in
NOTE Confidence: 0.919574783571429
00:21:15.013 --> 00:21:17.482 our laboratory right now looking at
NOTE Confidence: 0.919574783571429
00:21:17.482 --> 00:21:19.582 micro clots and platelet activation
NOTE Confidence: 0.919574783571429
00:21:19.582 --> 00:21:22.319 from people with post vaccine syndrome.
NOTE Confidence: 0.798544343684211
00:21:22.320 --> 00:21:25.575 We also have the the possibility that
NOTE Confidence: 0.798544343684211
00:21:25.575 --> 00:21:28.807 anti spike antibodies or T cells that
NOTE Confidence: 0.798544343684211
00:21:28.807 --> 00:21:30.997 attack spike expressing host cells
NOTE Confidence: 0.798544343684211
00:21:31.000 --> 00:21:33.376 and that could be of course the muscle
NOTE Confidence: 0.798544343684211
00:21:33.376 --> 00:21:35.704 cells are the major ones but there
NOTE Confidence: 0.798544343684211
00:21:35.704 --> 00:21:37.779 could be endothelial cells if the
NOTE Confidence: 0.798544343684211

00:21:37.779 --> 00:21:39.506 vaccine is circulates systemically
NOTE Confidence: 0.798544343684211

00:21:39.506 --> 00:21:42.590 there may be other source of sort
NOTE Confidence: 0.798544343684211

00:21:42.590 --> 00:21:45.050 of the cells expressing the spike
NOTE Confidence: 0.798544343684211

00:21:45.050 --> 00:21:47.997 protein which could be attacked by the
NOTE Confidence: 0.798544343684211

00:21:47.997 --> 00:21:50.520 adaptive immune cells and antibodies.
NOTE Confidence: 0.798544343684211

00:21:50.520 --> 00:21:53.214 There's also the possibility of molecular
NOTE Confidence: 0.798544343684211

00:21:53.214 --> 00:21:56.080 mimicry which is that the antibodies
NOTE Confidence: 0.798544343684211

00:21:56.080 --> 00:21:59.044 that are generated against the spike
NOTE Confidence: 0.798544343684211

00:21:59.044 --> 00:22:02.197 protein might also cross react to self
NOTE Confidence: 0.798544343684211

00:22:02.197 --> 00:22:05.320 antigens and that can also be a common
NOTE Confidence: 0.798544343684211

00:22:05.320 --> 00:22:08.720 pathology between post vaccine and
NOTE Confidence: 0.798544343684211

00:22:08.720 --> 00:22:12.312 COVID post COVID syndromes and it's
NOTE Confidence: 0.798544343684211

00:22:12.312 --> 00:22:15.364 not just antibody but T cells could
NOTE Confidence: 0.798544343684211

00:22:15.364 --> 00:22:18.216 also detect overlapping peptides from
NOTE Confidence: 0.798544343684211

00:22:18.216 --> 00:22:21.840 spike protein and and self protein
NOTE Confidence: 0.798544343684211

00:22:21.840 --> 00:22:24.744 and then you know vaccine induced

NOTE Confidence: 0.798544343684211

00:22:24.744 --> 00:22:27.141 reactivation of latent viruses could

NOTE Confidence: 0.798544343684211

00:22:27.141 --> 00:22:29.456 also be contributing and microbiome

NOTE Confidence: 0.798544343684211

00:22:29.456 --> 00:22:31.876 dysbiosis and and many others.

NOTE Confidence: 0.798544343684211

00:22:31.880 --> 00:22:34.070 So I'm sorry,

NOTE Confidence: 0.798544343684211

00:22:34.070 --> 00:22:35.240 I'm sorry I'm talking so much.

NOTE Confidence: 0.798544343684211

00:22:35.240 --> 00:22:37.480 But I also wanted to raise this other

NOTE Confidence: 0.798544343684211

00:22:37.480 --> 00:22:39.864 thing that was just published this

NOTE Confidence: 0.798544343684211

00:22:39.864 --> 00:22:42.600 week in Cell about the serotonin

NOTE Confidence: 0.798544343684211

00:22:42.600 --> 00:22:44.868 levels that are that are found to

NOTE Confidence: 0.798544343684211

00:22:44.868 --> 00:22:47.359 be reduced in people with on COVID.

NOTE Confidence: 0.798544343684211

00:22:47.360 --> 00:22:50.624 And and they were able to sort of

NOTE Confidence: 0.798544343684211

00:22:50.624 --> 00:22:53.650 link persistent virus and reduction in

NOTE Confidence: 0.798544343684211

00:22:53.650 --> 00:22:57.075 trypsin uptake within the intestine.

NOTE Confidence: 0.798544343684211

00:22:57.080 --> 00:22:59.005 That's a tryptophan uptake in

NOTE Confidence: 0.798544343684211

00:22:59.005 --> 00:23:01.434 the intestine that might lead to

NOTE Confidence: 0.798544343684211

00:23:01.434 --> 00:23:03.158 reduction in serotonin levels.
NOTE Confidence: 0.798544343684211

00:23:03.160 --> 00:23:05.638 And so you know there are many
NOTE Confidence: 0.798544343684211

00:23:05.638 --> 00:23:07.986 groups looking at the sort of
NOTE Confidence: 0.798544343684211

00:23:07.986 --> 00:23:09.958 link between persistent virus,
NOTE Confidence: 0.798544343684211

00:23:09.960 --> 00:23:13.050 persistent viral antigen and sort of
NOTE Confidence: 0.798544343684211

00:23:13.050 --> 00:23:16.368 chronic issues that can result all the
NOTE Confidence: 0.798544343684211

00:23:16.368 --> 00:23:19.480 way from the intestine to the to the brain.
NOTE Confidence: 0.798544343684211

00:23:19.480 --> 00:23:22.008 So you know it is encouraging to see
NOTE Confidence: 0.798544343684211

00:23:22.008 --> 00:23:25.832 lots of other sort of groups reporting
NOTE Confidence: 0.798544343684211

00:23:25.832 --> 00:23:28.072 interesting potential pathways and of
NOTE Confidence: 0.798544343684211

00:23:28.072 --> 00:23:30.888 course we'll be looking at the same
NOTE Confidence: 0.798544343684211

00:23:30.888 --> 00:23:33.800 pathways in post vaccine syndromes as well.
NOTE Confidence: 0.798544343684211

00:23:33.800 --> 00:23:36.437 So there's a lot to sort of go from
NOTE Confidence: 0.798544343684211

00:23:36.440 --> 00:23:39.359 you know like lots of emerging data
NOTE Confidence: 0.798544343684211

00:23:39.359 --> 00:23:42.400 happening and we're very excited about that.
NOTE Confidence: 0.798544343684211

00:23:42.400 --> 00:23:43.840 So I'm going to stop here.

NOTE Confidence: 0.894386803846154
00:23:44.800 --> 00:23:46.636 I think that was really important
NOTE Confidence: 0.894386803846154
00:23:46.636 --> 00:23:49.616 and and and I think isn't it one of
NOTE Confidence: 0.894386803846154
00:23:49.616 --> 00:23:52.142 the ideas that Kiko that by being
NOTE Confidence: 0.894386803846154
00:23:52.142 --> 00:23:54.860 able to look at at the vaccine group,
NOTE Confidence: 0.894386803846154
00:23:54.860 --> 00:23:57.800 it can provide insights to both groups,
NOTE Confidence: 0.894386803846154
00:23:57.800 --> 00:23:59.788 right. It's like because it in a
NOTE Confidence: 0.894386803846154
00:23:59.788 --> 00:24:01.814 way they they shouldn't have the
NOTE Confidence: 0.894386803846154
00:24:01.814 --> 00:24:04.034 vaccine persistent I mean the viral
NOTE Confidence: 0.894386803846154
00:24:04.040 --> 00:24:05.942 persistence but but that many of
NOTE Confidence: 0.894386803846154
00:24:05.942 --> 00:24:07.546 these mechanisms you're talking about
NOTE Confidence: 0.894386803846154
00:24:07.546 --> 00:24:09.492 could be crossing over to long COVID
NOTE Confidence: 0.894386803846154
00:24:09.492 --> 00:24:11.238 mechanisms as well all of them could.
NOTE Confidence: 0.934828348461539
00:24:11.760 --> 00:24:14.808 Yeah exactly. So the two different
NOTE Confidence: 0.934828348461539
00:24:14.808 --> 00:24:17.964 syndromes can sort of inform each
NOTE Confidence: 0.934828348461539
00:24:17.964 --> 00:24:20.370 other that the more we look deeper
NOTE Confidence: 0.934828348461539

00:24:20.370 --> 00:24:22.900 in the biology, the more we will
NOTE Confidence: 0.934828348461539

00:24:22.900 --> 00:24:24.480 find similarity and differences.
NOTE Confidence: 0.934828348461539

00:24:24.480 --> 00:24:26.316 And that's what we're excited about.
NOTE Confidence: 0.7656257725

00:24:30.200 --> 00:24:31.760 Mitsu, what should we do about the questions?
NOTE Confidence: 0.7656257725

00:24:31.760 --> 00:24:33.060 Because there are also questions
NOTE Confidence: 0.7656257725

00:24:33.060 --> 00:24:34.968 coming up on the chat and and
NOTE Confidence: 0.7656257725

00:24:34.968 --> 00:24:36.600 some people submitted questions.
NOTE Confidence: 0.7656257725

00:24:36.600 --> 00:24:38.553 I don't know how we want to manage this,
NOTE Confidence: 0.7656257725

00:24:38.560 --> 00:24:40.711 but I think lots of people want to hear
NOTE Confidence: 0.7656257725

00:24:40.711 --> 00:24:43.040 from Akiko around a lot of things.
NOTE Confidence: 0.7656257725

00:24:43.040 --> 00:24:45.074 Maybe even somebody asked about the
NOTE Confidence: 0.7656257725

00:24:45.074 --> 00:24:47.559 study that found T cell dysfunction,
NOTE Confidence: 0.7656257725

00:24:47.560 --> 00:24:49.275 EBV reactivation and low cortisol
NOTE Confidence: 0.7656257725

00:24:49.275 --> 00:24:51.400 as a trifecta biomarker of sorts.
NOTE Confidence: 0.7656257725

00:24:51.400 --> 00:24:54.315 So that's sort of what what you want
NOTE Confidence: 0.7656257725

00:24:54.315 --> 00:24:57.680 to just mention because it's yeah,

NOTE Confidence: 0.759370336666667
00:24:57.680 --> 00:25:00.350 absolutely. So that that's our like
NOTE Confidence: 0.759370336666667
00:25:00.350 --> 00:25:03.440 first big study based on the Mount
NOTE Confidence: 0.759370336666667
00:25:03.440 --> 00:25:07.824 Sinai Yale long COVID Group which I'm
NOTE Confidence: 0.759370336666667
00:25:07.824 --> 00:25:10.960 part of and that was finally published.
NOTE Confidence: 0.759370336666667
00:25:10.960 --> 00:25:13.291 It was on the by Medarchive for
NOTE Confidence: 0.759370336666667
00:25:13.291 --> 00:25:15.519 almost a actually more than a year,
NOTE Confidence: 0.759370336666667
00:25:15.520 --> 00:25:17.014 but usually it takes about a
NOTE Confidence: 0.759370336666667
00:25:17.014 --> 00:25:18.560 year to get something published.
NOTE Confidence: 0.759370336666667
00:25:18.560 --> 00:25:19.493 But anyway, yes,
NOTE Confidence: 0.759370336666667
00:25:19.493 --> 00:25:21.048 that's the trifecta that you're
NOTE Confidence: 0.759370336666667
00:25:21.048 --> 00:25:22.602 talking about and that's something
NOTE Confidence: 0.759370336666667
00:25:22.602 --> 00:25:24.639 that we were able to demonstrate with
NOTE Confidence: 0.759370336666667
00:25:24.697 --> 00:25:26.160 that group and obviously with the,
NOTE Confidence: 0.759370336666667
00:25:26.160 --> 00:25:26.725 yeah, listen,
NOTE Confidence: 0.759370336666667
00:25:26.725 --> 00:25:29.140 we want to be able to validate
NOTE Confidence: 0.759370336666667

00:25:29.140 --> 00:25:31.784 some of these findings and of
NOTE Confidence: 0.759370336666667

00:25:31.784 --> 00:25:33.504 course cross reference that to
NOTE Confidence: 0.759370336666667

00:25:33.504 --> 00:25:34.880 the post vaccine syndrome.
NOTE Confidence: 0.759370336666667

00:25:34.880 --> 00:25:35.662 So yeah,
NOTE Confidence: 0.759370336666667

00:25:35.662 --> 00:25:38.008 there's a lot happening and we're
NOTE Confidence: 0.759370336666667

00:25:38.008 --> 00:25:40.079 very excited to be part of it.
NOTE Confidence: 0.360482916666667

00:25:42.920 --> 00:25:45.476 I don't know, Mitsu, how who's,
NOTE Confidence: 0.360482916666667

00:25:45.480 --> 00:25:46.760 how do you want to do the questions?
NOTE Confidence: 0.886322257272727

00:25:50.520 --> 00:25:52.098 We can go through the chat
NOTE Confidence: 0.886322257272727

00:25:52.098 --> 00:25:53.640 if that would be better.
NOTE Confidence: 0.886322257272727

00:25:53.640 --> 00:25:55.160 We also have other questions,
NOTE Confidence: 0.886322257272727

00:25:55.160 --> 00:25:58.541 15 or so questions that have been
NOTE Confidence: 0.886322257272727

00:25:58.541 --> 00:26:01.560 submitted before the meeting started. I
NOTE Confidence: 0.823684290769231

00:26:01.560 --> 00:26:02.580 think you could just pick off
NOTE Confidence: 0.823684290769231

00:26:02.580 --> 00:26:03.758 if you just see any of that.
NOTE Confidence: 0.823684290769231

00:26:03.760 --> 00:26:05.552 Some of the questions are are actually

NOTE Confidence: 0.823684290769231
00:26:05.552 --> 00:26:07.346 similar in theme, so just keep,
NOTE Confidence: 0.823684290769231
00:26:07.346 --> 00:26:09.992 let's just see if we can have rapid
NOTE Confidence: 0.823684290769231
00:26:09.992 --> 00:26:12.064 responses from Akiko around a bunch of
NOTE Confidence: 0.823684290769231
00:26:12.064 --> 00:26:13.563 different questions because I think
NOTE Confidence: 0.823684290769231
00:26:13.563 --> 00:26:15.500 people would like to have have a lot
NOTE Confidence: 0.823684290769231
00:26:15.500 --> 00:26:17.040 of curiosity about a lot of things.
NOTE Confidence: 0.74419339
00:26:18.880 --> 00:26:20.352 This one's for Akiko,
NOTE Confidence: 0.74419339
00:26:20.352 --> 00:26:21.880 Maybe a question on micro clots,
NOTE Confidence: 0.74419339
00:26:21.880 --> 00:26:23.880 latest research on micro clots,
NOTE Confidence: 0.74419339
00:26:23.880 --> 00:26:26.772 What if any treatments do you
NOTE Confidence: 0.74419339
00:26:26.772 --> 00:26:29.320 recommend for micro micro clots?
NOTE Confidence: 0.74419339
00:26:29.320 --> 00:26:31.048 What's the latest research
NOTE Confidence: 0.74419339
00:26:31.048 --> 00:26:33.480 like this on long COVID?
NOTE Confidence: 0.959345894
00:26:35.160 --> 00:26:36.400 Yeah, thank you so much.
NOTE Confidence: 0.959345894
00:26:36.400 --> 00:26:40.840 So we just completed our analysis
NOTE Confidence: 0.959345894

00:26:40.840 --> 00:26:45.212 on micro clots and I I don't want

NOTE Confidence: 0.959345894

00:26:45.212 --> 00:26:47.252 to prematurely state anything that

NOTE Confidence: 0.959345894

00:26:47.252 --> 00:26:49.676 that may still change over time.

NOTE Confidence: 0.959345894

00:26:49.680 --> 00:26:52.784 But there there there is a lot

NOTE Confidence: 0.959345894

00:26:52.784 --> 00:26:55.120 of new ones to studying micro

NOTE Confidence: 0.959345894

00:26:55.120 --> 00:26:57.668 clots because there isn't like a

NOTE Confidence: 0.959345894

00:26:57.668 --> 00:26:59.553 standard way that a scientist,

NOTE Confidence: 0.959345894

00:26:59.560 --> 00:27:01.480 scientist all over the world are

NOTE Confidence: 0.959345894

00:27:01.480 --> 00:27:04.572 using to sort of determine micro

NOTE Confidence: 0.959345894

00:27:04.572 --> 00:27:08.144 clots and also you know quantify.

NOTE Confidence: 0.959345894

00:27:08.144 --> 00:27:11.074 So David Petrino and I,

NOTE Confidence: 0.959345894

00:27:11.080 --> 00:27:13.928 we've spent a lot of time and then

NOTE Confidence: 0.959345894

00:27:13.928 --> 00:27:15.700 with Reciproatorius and many others

NOTE Confidence: 0.959345894

00:27:15.700 --> 00:27:17.680 who are working on this area.

NOTE Confidence: 0.959345894

00:27:17.680 --> 00:27:19.682 I've tried to kind of come up

NOTE Confidence: 0.959345894

00:27:19.682 --> 00:27:21.029 with a normalized standardized

NOTE Confidence: 0.959345894

00:27:21.029 --> 00:27:23.159 way of measuring micro clots.

NOTE Confidence: 0.959345894

00:27:23.160 --> 00:27:25.998 So that's something we're working towards,

NOTE Confidence: 0.959345894

00:27:26.000 --> 00:27:28.760 but we are certainly seeing so.

NOTE Confidence: 0.959345894

00:27:28.760 --> 00:27:30.440 So we did a lot of different analysis,

NOTE Confidence: 0.959345894

00:27:30.440 --> 00:27:33.520 again micro clots, platelet activation,

NOTE Confidence: 0.959345894

00:27:33.520 --> 00:27:36.448 also mass spectrometry to see what

NOTE Confidence: 0.959345894

00:27:36.448 --> 00:27:39.518 factors are being elevated in the blood.

NOTE Confidence: 0.959345894

00:27:39.520 --> 00:27:42.250 And all of these combined seem

NOTE Confidence: 0.959345894

00:27:42.250 --> 00:27:44.280 to suggest definitely platelet

NOTE Confidence: 0.959345894

00:27:44.280 --> 00:27:47.080 hyperactivation and many people with

NOTE Confidence: 0.959345894

00:27:47.080 --> 00:27:50.840 long COVID that's accompanied by

NOTE Confidence: 0.959345894

00:27:50.840 --> 00:27:54.360 things like neutrophil activation

NOTE Confidence: 0.959345894

00:27:54.360 --> 00:27:56.608 and potential endothelial damage.

NOTE Confidence: 0.959345894

00:27:56.608 --> 00:28:00.800 This we just started to wrap this up.

NOTE Confidence: 0.959345894

00:28:00.800 --> 00:28:03.272 So you know I don't want to prematurely

NOTE Confidence: 0.959345894

00:28:03.272 --> 00:28:05.108 conclude anything but these are some
NOTE Confidence: 0.959345894

00:28:05.108 --> 00:28:06.920 of the insights we're getting and
NOTE Confidence: 0.959345894

00:28:06.920 --> 00:28:09.800 but but you know again we don't know
NOTE Confidence: 0.959345894

00:28:09.800 --> 00:28:12.905 what actionable things we can suggest
NOTE Confidence: 0.959345894

00:28:12.905 --> 00:28:14.784 because you know anticoagulation
NOTE Confidence: 0.959345894

00:28:14.784 --> 00:28:17.024 therapies and things like that
NOTE Confidence: 0.959345894

00:28:17.024 --> 00:28:20.196 are you know come with some danger
NOTE Confidence: 0.959345894

00:28:20.196 --> 00:28:22.497 and we don't want to be promoting
NOTE Confidence: 0.959345894

00:28:22.497 --> 00:28:25.119 everyone to get those things either.
NOTE Confidence: 0.959345894

00:28:25.120 --> 00:28:28.600 So very prematurely we are seeing
NOTE Confidence: 0.959345894

00:28:28.600 --> 00:28:31.182 some signs but I I just want to
NOTE Confidence: 0.959345894

00:28:31.182 --> 00:28:32.939 be also also cautious that things
NOTE Confidence: 0.959345894

00:28:32.939 --> 00:28:34.799 can change after further analysis.
NOTE Confidence: 0.41202995

00:28:37.440 --> 00:28:40.520 Thanks. We have a question. One
NOTE Confidence: 0.7936993

00:28:40.520 --> 00:28:42.648 thing I just somebody was asking about
NOTE Confidence: 0.7936993

00:28:42.648 --> 00:28:44.912 number of people and listen and and the

NOTE Confidence: 0.7936993

00:28:44.912 --> 00:28:46.192 percentages of both groups actually

NOTE Confidence: 0.7936993

00:28:46.192 --> 00:28:47.858 I don't know the most recent numbers

NOTE Confidence: 0.7936993

00:28:47.858 --> 00:28:49.803 but we were we see you may know but

NOTE Confidence: 0.7936993

00:28:49.803 --> 00:28:51.673 something like we were up to like 2500

NOTE Confidence: 0.7936993

00:28:51.673 --> 00:28:54.031 people listen overall and I thought

NOTE Confidence: 0.7936993

00:28:54.031 --> 00:28:57.776 it was something like 30% or or maybe

NOTE Confidence: 0.7936993

00:28:57.776 --> 00:29:00.040 you you know receives 30% vaccine,

NOTE Confidence: 0.888960945833333

00:29:00.880 --> 00:29:03.190 right. Are you referring to like how

NOTE Confidence: 0.888960945833333

00:29:03.190 --> 00:29:04.880 many participants in each cohort

NOTE Confidence: 0.752861785555555

00:29:04.880 --> 00:29:07.152 or well there's we have the like larger

NOTE Confidence: 0.752861785555555

00:29:07.152 --> 00:29:09.741 study and then in what in the analysis

NOTE Confidence: 0.752861785555555

00:29:09.741 --> 00:29:10.985 you've presented how many people

NOTE Confidence: 0.752861785555555

00:29:10.985 --> 00:29:12.440 were in each of the groups, right.

NOTE Confidence: 0.87330898

00:29:12.440 --> 00:29:14.888 So we had 443 participants that

NOTE Confidence: 0.87330898

00:29:14.888 --> 00:29:17.272 had just long COVID only and

NOTE Confidence: 0.87330898

00:29:17.272 --> 00:29:19.960 this was as of July of this year.
NOTE Confidence: 0.87330898

00:29:19.960 --> 00:29:22.833 And then in the A vaccine injury
NOTE Confidence: 0.87330898

00:29:22.833 --> 00:29:25.160 only group we had 241 participants.
NOTE Confidence: 0.911868275

00:29:25.320 --> 00:29:27.035 Yeah. And you know we had some
NOTE Confidence: 0.911868275

00:29:27.035 --> 00:29:28.415 restrictions in order to get
NOTE Confidence: 0.911868275

00:29:28.415 --> 00:29:30.197 those groups together like the not
NOTE Confidence: 0.911868275

00:29:30.197 --> 00:29:31.723 overlapping syndromes which we still
NOTE Confidence: 0.911868275

00:29:31.723 --> 00:29:33.193 think is interesting and important.
NOTE Confidence: 0.911868275

00:29:33.200 --> 00:29:35.856 Many of you are suffering and and from both,
NOTE Confidence: 0.911868275

00:29:35.856 --> 00:29:38.608 but it was just trying to get, you know,
NOTE Confidence: 0.911868275

00:29:38.608 --> 00:29:40.064 distinctive cohorts that people
NOTE Confidence: 0.911868275

00:29:40.064 --> 00:29:42.112 are only reporting one one thing.
NOTE Confidence: 0.911868275

00:29:42.112 --> 00:29:43.000 Another thing by
NOTE Confidence: 0.661380966666667

00:29:43.240 --> 00:29:46.408 the question on potential bio markers
NOTE Confidence: 0.661380966666667

00:29:46.408 --> 00:29:49.720 for long COVID, this was for Akiko Fall.
NOTE Confidence: 0.45026422

00:29:51.120 --> 00:29:53.200 Yeah. So all of them to Kiko,

NOTE Confidence: 0.4682126233333333
00:29:53.200 --> 00:29:54.916 'cause she's got all of this
NOTE Confidence: 0.404031608
00:29:54.920 --> 00:29:56.680 about this. No. No. Yeah.
NOTE Confidence: 0.404031608
00:29:56.680 --> 00:29:58.355 So that that that's probably
NOTE Confidence: 0.404031608
00:29:58.355 --> 00:30:00.034 referring to the, you know,
NOTE Confidence: 0.404031608
00:30:00.034 --> 00:30:02.393 study that we just published in Nature
NOTE Confidence: 0.404031608
00:30:02.393 --> 00:30:04.218 about the different distinguishing
NOTE Confidence: 0.404031608
00:30:04.218 --> 00:30:06.593 factors we've found with people,
NOTE Confidence: 0.404031608
00:30:06.600 --> 00:30:08.800 with people with long COVID
NOTE Confidence: 0.404031608
00:30:08.800 --> 00:30:10.980 versus people who recovered or
NOTE Confidence: 0.404031608
00:30:10.980 --> 00:30:13.080 people who were never infected.
NOTE Confidence: 0.404031608
00:30:13.080 --> 00:30:16.622 And so yes, we did find several
NOTE Confidence: 0.404031608
00:30:16.622 --> 00:30:18.952 distinct features including lower
NOTE Confidence: 0.404031608
00:30:18.952 --> 00:30:22.640 levels of cortisol ebb reactivation
NOTE Confidence: 0.404031608
00:30:22.640 --> 00:30:26.535 and some level of differences
NOTE Confidence: 0.404031608
00:30:26.535 --> 00:30:29.720 in T cell and B cell features.
NOTE Confidence: 0.404031608

00:30:29.720 --> 00:30:31.945 Particularly you know activated B
NOTE Confidence: 0.404031608

00:30:31.945 --> 00:30:34.629 cells and exhausted T cells were
NOTE Confidence: 0.404031608

00:30:34.629 --> 00:30:37.296 elevated in in some people with long
NOTE Confidence: 0.404031608

00:30:37.296 --> 00:30:39.312 COVID and elevated antibody levels
NOTE Confidence: 0.404031608

00:30:39.312 --> 00:30:41.760 to SARS COVID 2 spike protein.
NOTE Confidence: 0.404031608

00:30:41.760 --> 00:30:44.231 So these things all together to us
NOTE Confidence: 0.404031608

00:30:44.231 --> 00:30:47.121 suggest that the four hypothesis that I
NOTE Confidence: 0.404031608

00:30:47.121 --> 00:30:49.412 mentioned prior may all be happening.
NOTE Confidence: 0.404031608

00:30:49.412 --> 00:30:52.435 And we're now doing a more deeper dive
NOTE Confidence: 0.404031608

00:30:52.435 --> 00:30:54.919 on sex differences in long COVID.
NOTE Confidence: 0.404031608

00:30:54.920 --> 00:30:58.280 And there we're finding for instance
NOTE Confidence: 0.404031608

00:30:58.280 --> 00:31:00.760 elevated levels of auto antibodies
NOTE Confidence: 0.404031608

00:31:00.760 --> 00:31:03.240 and particularly in female patients
NOTE Confidence: 0.404031608

00:31:03.240 --> 00:31:05.562 as well as this ebb reactivation
NOTE Confidence: 0.404031608

00:31:05.562 --> 00:31:08.018 being also more dominant in female
NOTE Confidence: 0.404031608

00:31:08.018 --> 00:31:10.514 patients compared to the male patients.

NOTE Confidence: 0.404031608

00:31:10.520 --> 00:31:13.800 So there's a lot of nuances to

NOTE Confidence: 0.404031608

00:31:13.800 --> 00:31:15.960 the biomarker discussion.

NOTE Confidence: 0.404031608

00:31:15.960 --> 00:31:18.606 One has to do with obviously different

NOTE Confidence: 0.404031608

00:31:18.606 --> 00:31:20.959 SX differences in these biomarkers.

NOTE Confidence: 0.404031608

00:31:20.960 --> 00:31:23.222 The other has to do with endotypes

NOTE Confidence: 0.404031608

00:31:23.222 --> 00:31:24.728 of long COVID.

NOTE Confidence: 0.404031608

00:31:24.728 --> 00:31:28.400 We believe that long COVID is likely

NOTE Confidence: 0.404031608

00:31:28.400 --> 00:31:30.086 representing multiple different

NOTE Confidence: 0.404031608

00:31:30.086 --> 00:31:32.896 diseases under one umbrella and

NOTE Confidence: 0.404031608

00:31:32.896 --> 00:31:35.773 based on the driver of disease,

NOTE Confidence: 0.404031608

00:31:35.773 --> 00:31:39.473 we will likely have distinct sort

NOTE Confidence: 0.404031608

00:31:39.473 --> 00:31:41.638 of biomarkers to describe it.

NOTE Confidence: 0.404031608

00:31:41.640 --> 00:31:44.065 And that's not only important

NOTE Confidence: 0.404031608

00:31:44.065 --> 00:31:46.540 for medical sort of purposes

NOTE Confidence: 0.404031608

00:31:46.540 --> 00:31:48.040 of diagnosing patients,

NOTE Confidence: 0.404031608

00:31:48.040 --> 00:31:52.120 but also for potential therapy down the road.

NOTE Confidence: 0.404031608

00:31:52.120 --> 00:31:52.950 For instance,

NOTE Confidence: 0.404031608

00:31:52.950 --> 00:31:55.855 if persistent virus is found in a

NOTE Confidence: 0.404031608

00:31:55.855 --> 00:31:58.427 subset of long COVID patients which

NOTE Confidence: 0.404031608

00:31:58.427 --> 00:32:01.200 we will uncover using the Paxlovid

NOTE Confidence: 0.404031608

00:32:01.200 --> 00:32:03.640 biological study that we're doing

NOTE Confidence: 0.404031608

00:32:03.640 --> 00:32:06.640 in conjunction with the the trial,

NOTE Confidence: 0.404031608

00:32:06.640 --> 00:32:08.800 we we should be able to say OK

NOTE Confidence: 0.404031608

00:32:08.800 --> 00:32:11.128 here are the five markers that

NOTE Confidence: 0.404031608

00:32:11.128 --> 00:32:14.168 correspond with a Paxlovid response,

NOTE Confidence: 0.404031608

00:32:14.168 --> 00:32:16.984 positive response to Paxlovid and

NOTE Confidence: 0.404031608

00:32:16.984 --> 00:32:19.288 that by definition should sort of

NOTE Confidence: 0.404031608

00:32:19.288 --> 00:32:21.947 define a subset of patients that

NOTE Confidence: 0.404031608

00:32:21.947 --> 00:32:24.337 have persistent virus and therefore

NOTE Confidence: 0.404031608

00:32:24.337 --> 00:32:26.931 might benefit in the future with

NOTE Confidence: 0.404031608

00:32:26.931 --> 00:32:28.886 Paxlovid treatment in in the

NOTE Confidence: 0.404031608

00:32:28.886 --> 00:32:30.477 group the larger population.

NOTE Confidence: 0.404031608

00:32:30.477 --> 00:32:33.270 So that's just one example of a

NOTE Confidence: 0.404031608

00:32:33.348 --> 00:32:35.562 biomarker that we are going after

NOTE Confidence: 0.404031608

00:32:35.562 --> 00:32:38.095 based on the the four different

NOTE Confidence: 0.404031608

00:32:38.095 --> 00:32:41.084 drivers of disease and we can also

NOTE Confidence: 0.404031608

00:32:41.084 --> 00:32:42.989 have similar biomarkers for say

NOTE Confidence: 0.404031608

00:32:42.989 --> 00:32:45.151 auto antibody mediated conditions

NOTE Confidence: 0.404031608

00:32:45.151 --> 00:32:47.424 or EBV dependent conditions.

NOTE Confidence: 0.404031608

00:32:47.424 --> 00:32:49.676 And so, so you know we're,

NOTE Confidence: 0.404031608

00:32:49.676 --> 00:32:51.760 we're still at the very early phase,

NOTE Confidence: 0.404031608

00:32:51.760 --> 00:32:55.454 but we're hopeful to be able to find

NOTE Confidence: 0.404031608

00:32:55.454 --> 00:32:57.270 distinct features that correspond

NOTE Confidence: 0.404031608

00:32:57.270 --> 00:32:59.540 to these different drivers and

NOTE Confidence: 0.404031608

00:32:59.613 --> 00:33:01.633 therefore diagnose and potentially

NOTE Confidence: 0.404031608

00:33:01.633 --> 00:33:04.158 treat patients with these markers.

NOTE Confidence: 0.840738506666667

00:33:12.600 --> 00:33:15.636 Thank you, Akiko. Related to that,
NOTE Confidence: 0.840738506666667

00:33:15.640 --> 00:33:20.128 there's a question on T lymphocytopenia
NOTE Confidence: 0.840738506666667

00:33:20.128 --> 00:33:22.476 and what can you tell us about that?
NOTE Confidence: 0.94338756625

00:33:23.680 --> 00:33:27.080 Yeah. So during the acute
NOTE Confidence: 0.94338756625

00:33:27.080 --> 00:33:29.120 severe COVID investigation,
NOTE Confidence: 0.94338756625

00:33:29.120 --> 00:33:31.796 we did early in the pandemic,
NOTE Confidence: 0.94338756625

00:33:31.800 --> 00:33:35.064 we saw as long as well as many
NOTE Confidence: 0.94338756625

00:33:35.064 --> 00:33:36.816 other studies significant depletion
NOTE Confidence: 0.94338756625

00:33:36.816 --> 00:33:39.156 of T cells in circulation.
NOTE Confidence: 0.94338756625

00:33:39.160 --> 00:33:42.472 So this is AT lymphopenia is a clear
NOTE Confidence: 0.94338756625

00:33:42.472 --> 00:33:45.238 marker for acute severe disease.
NOTE Confidence: 0.94338756625

00:33:45.240 --> 00:33:47.240 And in fact the more severe the disease,
NOTE Confidence: 0.94338756625

00:33:47.240 --> 00:33:49.262 the less T cells we found
NOTE Confidence: 0.94338756625

00:33:49.262 --> 00:33:51.480 in the in the patients.
NOTE Confidence: 0.94338756625

00:33:51.480 --> 00:33:53.640 However, most patients eventually
NOTE Confidence: 0.94338756625

00:33:53.640 --> 00:33:56.880 recovered the level of T cells.

NOTE Confidence: 0.94338756625
00:33:56.880 --> 00:33:59.118 Now that's talking about acute COVID.
NOTE Confidence: 0.94338756625
00:33:59.120 --> 00:34:02.305 In long COVID we didn't find a
NOTE Confidence: 0.94338756625
00:34:02.305 --> 00:34:04.918 significant reduction in T cell number,
NOTE Confidence: 0.94338756625
00:34:04.920 --> 00:34:07.855 naive T cell number for example in
NOTE Confidence: 0.94338756625
00:34:07.855 --> 00:34:11.040 people with with or without long COVID.
NOTE Confidence: 0.94338756625
00:34:11.040 --> 00:34:13.350 So so we don't we don't know
NOTE Confidence: 0.94338756625
00:34:13.350 --> 00:34:15.457 if T lymphopenia is really a
NOTE Confidence: 0.94338756625
00:34:15.457 --> 00:34:17.197 key feature of long COVID.
NOTE Confidence: 0.94338756625
00:34:17.200 --> 00:34:17.758 But again,
NOTE Confidence: 0.94338756625
00:34:17.758 --> 00:34:19.153 as I mentioned that there
NOTE Confidence: 0.94338756625
00:34:19.153 --> 00:34:20.575 may be different subtypes of
NOTE Confidence: 0.94338756625
00:34:20.575 --> 00:34:22.153 long COVID and and you know,
NOTE Confidence: 0.94338756625
00:34:22.160 --> 00:34:24.880 we can't rule out that that is one
NOTE Confidence: 0.94338756625
00:34:24.880 --> 00:34:26.878 feature that's associated with the subtype.
NOTE Confidence: 0.94338756625
00:34:26.880 --> 00:34:30.000 So, but in our My long COVID study,
NOTE Confidence: 0.94338756625

00:34:30.000 --> 00:34:32.754 we didn't see a huge reduction in T cells.
NOTE Confidence: 0.875183716

00:34:37.960 --> 00:34:40.732 Thank you, Geko. And we also had
NOTE Confidence: 0.875183716

00:34:40.732 --> 00:34:43.244 a question on children's immunity
NOTE Confidence: 0.875183716

00:34:43.244 --> 00:34:46.554 towards COVID and Lung COVID.
NOTE Confidence: 0.875183716

00:34:46.560 --> 00:34:49.220 Do 4 year olds, 5 year old kids have any
NOTE Confidence: 0.875183716

00:34:49.293 --> 00:34:51.759 kind of immune advantage over adults?
NOTE Confidence: 0.853214624

00:34:54.520 --> 00:34:58.748 Yeah. So there's been several key studies
NOTE Confidence: 0.853214624

00:34:58.748 --> 00:35:01.394 done to compare children's immune
NOTE Confidence: 0.853214624

00:35:01.394 --> 00:35:04.464 response to source COVID 2 versus adults.
NOTE Confidence: 0.853214624

00:35:04.464 --> 00:35:08.400 And I think the consensus in the field
NOTE Confidence: 0.853214624

00:35:08.493 --> 00:35:11.591 is that children do develop strong
NOTE Confidence: 0.853214624

00:35:11.591 --> 00:35:14.546 innate immune response that prevents
NOTE Confidence: 0.853214624

00:35:14.546 --> 00:35:18.841 the spread of the virus much more
NOTE Confidence: 0.853214624

00:35:18.841 --> 00:35:21.891 quickly than adults and therefore
NOTE Confidence: 0.853214624

00:35:21.891 --> 00:35:24.959 their disease tend to be milder.
NOTE Confidence: 0.853214624

00:35:24.960 --> 00:35:27.390 But that doesn't mean that children

NOTE Confidence: 0.853214624

00:35:27.390 --> 00:35:29.799 are spared from developing long COVID.

NOTE Confidence: 0.853214624

00:35:29.800 --> 00:35:32.530 We know that even though the rate

NOTE Confidence: 0.853214624

00:35:32.530 --> 00:35:34.992 of conversion to long COVID may

NOTE Confidence: 0.853214624

00:35:34.992 --> 00:35:36.600 be lower than adults,

NOTE Confidence: 0.853214624

00:35:36.600 --> 00:35:38.600 children do develop long COVID.

NOTE Confidence: 0.853214624

00:35:38.600 --> 00:35:41.806 And in fact one of the pediatric

NOTE Confidence: 0.853214624

00:35:41.806 --> 00:35:44.128 infectious disease fellow in my

NOTE Confidence: 0.853214624

00:35:44.128 --> 00:35:46.732 laboratory is looking at children with

NOTE Confidence: 0.853214624

00:35:46.732 --> 00:35:49.569 long COVID and we're starting to think

NOTE Confidence: 0.853214624

00:35:49.569 --> 00:35:52.625 about how do we provide a medical

NOTE Confidence: 0.853214624

00:35:52.625 --> 00:35:55.715 care for people in that category.

NOTE Confidence: 0.853214624

00:35:55.720 --> 00:35:57.418 But anyway, yes,

NOTE Confidence: 0.853214624

00:35:57.418 --> 00:36:01.720 so in in general children do tend to

NOTE Confidence: 0.853214624

00:36:01.720 --> 00:36:04.402 develop this very robust innate immune

NOTE Confidence: 0.853214624

00:36:04.402 --> 00:36:06.650 resistance against the virus and

NOTE Confidence: 0.853214624

00:36:06.650 --> 00:36:09.194 therefore are spared from severe disease.

NOTE Confidence: 0.853214624

00:36:09.194 --> 00:36:12.480 But there are sort of Missy as

NOTE Confidence: 0.853214624

00:36:12.480 --> 00:36:14.744 well as like cases of long COVID

NOTE Confidence: 0.853214624

00:36:14.744 --> 00:36:16.074 that can happen in children.

NOTE Confidence: 0.853214624

00:36:16.080 --> 00:36:18.498 So that that is even less

NOTE Confidence: 0.853214624

00:36:18.498 --> 00:36:20.720 study than adult long COVID.

NOTE Confidence: 0.841912016666667

00:36:25.240 --> 00:36:29.009 Thank you, Akiko. And we are

NOTE Confidence: 0.841912016666667

00:36:29.009 --> 00:36:31.667 nearing yeah 10 more minutes for

NOTE Confidence: 0.841912016666667

00:36:31.667 --> 00:36:35.035 the until the end of this meeting.

NOTE Confidence: 0.841912016666667

00:36:35.040 --> 00:36:37.400 Colin would you like to. I

NOTE Confidence: 0.762723825

00:36:37.400 --> 00:36:39.240 just want to ask Akiko one more question.

NOTE Confidence: 0.762723825

00:36:39.240 --> 00:36:43.945 Just so sometimes I'm looking at the

NOTE Confidence: 0.762723825

00:36:43.945 --> 00:36:46.287 literature and I'm seeing like even

NOTE Confidence: 0.762723825

00:36:46.287 --> 00:36:48.548 studies that are at odds with each

NOTE Confidence: 0.762723825

00:36:48.548 --> 00:36:51.042 other and and it seems sometimes that,

NOTE Confidence: 0.762723825

00:36:51.042 --> 00:36:52.974 you know, it's there's a it's

NOTE Confidence: 0.762723825

00:36:52.974 --> 00:36:55.159 slow to have a full consensus.

NOTE Confidence: 0.762723825

00:36:55.160 --> 00:36:57.592 And I I sometimes even worry that some

NOTE Confidence: 0.762723825

00:36:57.592 --> 00:36:59.310 studies come out and we, you know,

NOTE Confidence: 0.762723825

00:36:59.310 --> 00:37:00.675 we get excited about the next study.

NOTE Confidence: 0.762723825

00:37:00.680 --> 00:37:01.772 The one thing about the serotonin

NOTE Confidence: 0.762723825

00:37:01.772 --> 00:37:03.158 state that was also an animal's right,

NOTE Confidence: 0.762723825

00:37:03.160 --> 00:37:05.036 they were using an animal study model.

NOTE Confidence: 0.762723825

00:37:05.040 --> 00:37:06.832 So I thought that was that was also

NOTE Confidence: 0.762723825

00:37:06.832 --> 00:37:08.406 an advance like because they could

NOTE Confidence: 0.762723825

00:37:08.406 --> 00:37:10.014 control more things and and and

NOTE Confidence: 0.762723825

00:37:10.066 --> 00:37:11.669 show things what what is it that

NOTE Confidence: 0.762723825

00:37:11.669 --> 00:37:13.194 makes you most optimistic about

NOTE Confidence: 0.762723825

00:37:13.194 --> 00:37:16.113 like what's going to happen in this

NOTE Confidence: 0.762723825

00:37:16.113 --> 00:37:19.742 field in the next six months just

NOTE Confidence: 0.762723825

00:37:19.742 --> 00:37:21.074 because I think people need hope,

NOTE Confidence: 0.762723825

00:37:21.080 --> 00:37:23.168 you know that that there actually
NOTE Confidence: 0.762723825

00:37:23.168 --> 00:37:24.840 is something that that will happen.
NOTE Confidence: 0.762723825

00:37:24.840 --> 00:37:26.464 What gives you the most optimism about
NOTE Confidence: 0.762723825

00:37:26.464 --> 00:37:27.920 that we're going to make progress.
NOTE Confidence: 0.962466591

00:37:29.880 --> 00:37:32.784 So you know, even though it
NOTE Confidence: 0.962466591

00:37:32.784 --> 00:37:35.576 seems very slow to patients,
NOTE Confidence: 0.962466591

00:37:35.576 --> 00:37:39.497 the scientific community is working
NOTE Confidence: 0.962466591

00:37:39.497 --> 00:37:42.479 very hard around this problem and
NOTE Confidence: 0.962466591

00:37:42.480 --> 00:37:44.455 the discoveries that are being
NOTE Confidence: 0.962466591

00:37:44.455 --> 00:37:48.104 made in this field is quite rapid.
NOTE Confidence: 0.962466591

00:37:48.104 --> 00:37:51.903 You know as you all know things like HIV,
NOTE Confidence: 0.962466591

00:37:51.903 --> 00:37:54.864 it took many, many years to decades
NOTE Confidence: 0.962466591

00:37:54.864 --> 00:37:57.919 to come up with the standardized
NOTE Confidence: 0.962466591

00:37:57.920 --> 00:37:59.615 diagnostic criteria treatment,
NOTE Confidence: 0.962466591

00:37:59.615 --> 00:38:02.280 but eventually it happened, right.
NOTE Confidence: 0.962466591

00:38:02.280 --> 00:38:04.680 So now we can treat with

NOTE Confidence: 0.962466591

00:38:04.680 --> 00:38:06.074 antiretrovirals and the the,

NOTE Confidence: 0.962466591

00:38:06.074 --> 00:38:08.778 the disease can be managed to a very,

NOTE Confidence: 0.962466591

00:38:08.778 --> 00:38:09.996 very large extent.

NOTE Confidence: 0.962466591

00:38:10.000 --> 00:38:12.220 We still don't have vaccines

NOTE Confidence: 0.962466591

00:38:12.220 --> 00:38:14.650 against HIV but that's you know

NOTE Confidence: 0.962466591

00:38:14.650 --> 00:38:16.690 the disease can be managed and

NOTE Confidence: 0.962466591

00:38:16.690 --> 00:38:19.150 diagnosed properly and our dream is

NOTE Confidence: 0.962466591

00:38:19.150 --> 00:38:22.038 to get there as soon as possible.

NOTE Confidence: 0.962466591

00:38:22.040 --> 00:38:24.616 Can we have a diagnostic criteria and

NOTE Confidence: 0.962466591

00:38:24.616 --> 00:38:27.485 can we have a treatment that works

NOTE Confidence: 0.962466591

00:38:27.485 --> 00:38:30.240 for these different and the types of

NOTE Confidence: 0.962466591

00:38:30.240 --> 00:38:32.998 won't COVID so and of course before

NOTE Confidence: 0.962466591

00:38:32.998 --> 00:38:35.338 post vaccine syndrome as well we would

NOTE Confidence: 0.962466591

00:38:35.338 --> 00:38:37.536 love to come up with a diagnostic

NOTE Confidence: 0.962466591

00:38:37.536 --> 00:38:42.120 tool as well as therapeutic tools.

NOTE Confidence: 0.962466591

00:38:42.120 --> 00:38:46.044 And so I'm you know I I think it's
NOTE Confidence: 0.962466591

00:38:46.044 --> 00:38:47.648 it's hard to sort of forecast how
NOTE Confidence: 0.962466591

00:38:47.648 --> 00:38:49.472 long it's going to take to get there.
NOTE Confidence: 0.962466591

00:38:49.480 --> 00:38:53.435 But I am hopeful the serotonin study,
NOTE Confidence: 0.962466591

00:38:53.440 --> 00:38:53.915 yeah,
NOTE Confidence: 0.962466591

00:38:53.915 --> 00:38:56.765 that that one used a combination
NOTE Confidence: 0.962466591

00:38:56.765 --> 00:38:59.910 of metabolomic data along with a
NOTE Confidence: 0.962466591

00:38:59.910 --> 00:39:03.243 different animal models to model this
NOTE Confidence: 0.962466591

00:39:03.243 --> 00:39:06.344 distinct aspect of infection And you
NOTE Confidence: 0.962466591

00:39:06.344 --> 00:39:09.228 know people are you know using clever
NOTE Confidence: 0.962466591

00:39:09.228 --> 00:39:11.406 approaches like that too to tackle this.
NOTE Confidence: 0.962466591

00:39:11.406 --> 00:39:13.100 And and again I I I don't
NOTE Confidence: 0.962466591

00:39:13.161 --> 00:39:14.517 think it's one disease.
NOTE Confidence: 0.962466591

00:39:14.520 --> 00:39:17.480 So I don't think one thing is 1 drug
NOTE Confidence: 0.962466591

00:39:17.480 --> 00:39:19.720 is going to be able to treat everyone.
NOTE Confidence: 0.962466591

00:39:19.720 --> 00:39:22.436 But the the more we make these

NOTE Confidence: 0.962466591

00:39:22.436 --> 00:39:24.691 discoveries and have hypothesis to test

NOTE Confidence: 0.962466591

00:39:24.691 --> 00:39:28.235 the more we can do so with you know

NOTE Confidence: 0.962466591

00:39:28.235 --> 00:39:30.760 clinical trial coupled with biomarker

NOTE Confidence: 0.962466591

00:39:30.760 --> 00:39:33.435 analysis like what we're doing with

NOTE Confidence: 0.962466591

00:39:33.435 --> 00:39:36.360 you know the the the Paxlovid trial.

NOTE Confidence: 0.962466591

00:39:36.360 --> 00:39:39.735 So I'm hopeful and we're

NOTE Confidence: 0.962466591

00:39:39.735 --> 00:39:42.920 working really hard and we just

NOTE Confidence: 0.962466591

00:39:42.920 --> 00:39:44.360 we just need to keep going.

NOTE Confidence: 0.962466591

00:39:44.360 --> 00:39:44.400 I

NOTE Confidence: 0.8399373233333333

00:39:45.840 --> 00:39:47.799 think that's great.

NOTE Confidence: 0.8399373233333333

00:39:47.800 --> 00:39:49.968 I I I appreciate that I and I

NOTE Confidence: 0.8399373233333333

00:39:49.968 --> 00:39:52.600 agree with you 100% you know but I

NOTE Confidence: 0.8399373233333333

00:39:52.600 --> 00:39:55.382 know we also know that for people

NOTE Confidence: 0.8399373233333333

00:39:55.382 --> 00:39:57.440 who are experiencing this you

NOTE Confidence: 0.8399373233333333

00:39:57.440 --> 00:39:59.040 know living with these conditions

NOTE Confidence: 0.8399373233333333

00:39:59.040 --> 00:40:01.148 it it's never fast enough and we
NOTE Confidence: 0.8399373233333333

00:40:01.148 --> 00:40:03.450 know that and so we never want to
NOTE Confidence: 0.8399373233333333

00:40:03.450 --> 00:40:06.160 diminish you know that but but but.
NOTE Confidence: 0.8399373233333333

00:40:06.160 --> 00:40:07.320 We are seeing progress.
NOTE Confidence: 0.8011011533333333

00:40:09.520 --> 00:40:10.762 The one thing I know somebody
NOTE Confidence: 0.8011011533333333

00:40:10.762 --> 00:40:12.055 keeps somebody put up twice this
NOTE Confidence: 0.8011011533333333

00:40:12.055 --> 00:40:13.110 thing about Vinny Prasad and
NOTE Confidence: 0.8011011533333333

00:40:13.110 --> 00:40:14.599 that kind of thing that he wrote.
NOTE Confidence: 0.8011011533333333

00:40:14.600 --> 00:40:18.436 I'll just make a comment on it.
NOTE Confidence: 0.8011011533333333

00:40:18.440 --> 00:40:20.568 You know, there are people out there
NOTE Confidence: 0.8011011533333333

00:40:20.568 --> 00:40:23.220 who want to dismiss or diminish what
NOTE Confidence: 0.8011011533333333

00:40:23.220 --> 00:40:26.086 some people are experiencing and that's
NOTE Confidence: 0.8011011533333333

00:40:26.086 --> 00:40:28.916 unfortunate but maybe not unexpected.
NOTE Confidence: 0.8011011533333333

00:40:28.920 --> 00:40:30.576 Think of the best we can do is
NOTE Confidence: 0.8011011533333333

00:40:30.576 --> 00:40:32.108 to continue to drive forward the
NOTE Confidence: 0.8011011533333333

00:40:32.108 --> 00:40:33.704 science and to amplify the voices

NOTE Confidence: 0.801101153333333

00:40:33.761 --> 00:40:35.434 of what people are are living with

NOTE Confidence: 0.801101153333333

00:40:35.440 --> 00:40:37.636 so that people know it's real.

NOTE Confidence: 0.801101153333333

00:40:37.640 --> 00:40:41.580 Actually been a who I've known for a

NOTE Confidence: 0.801101153333333

00:40:41.580 --> 00:40:43.800 long time I throughout most of the pandemic.

NOTE Confidence: 0.801101153333333

00:40:43.800 --> 00:40:46.896 I mean, I what I I know is being recorded.

NOTE Confidence: 0.801101153333333

00:40:46.896 --> 00:40:48.040 But I'll just say it, you know,

NOTE Confidence: 0.801101153333333

00:40:48.040 --> 00:40:49.568 a lot of the stuff I read, you know,

NOTE Confidence: 0.801101153333333

00:40:49.568 --> 00:40:50.792 it's like he's thinks he's the

NOTE Confidence: 0.801101153333333

00:40:50.792 --> 00:40:51.719 smartest person in the world.

NOTE Confidence: 0.801101153333333

00:40:51.720 --> 00:40:53.754 And and like he what he says is like

NOTE Confidence: 0.801101153333333

00:40:53.754 --> 00:40:55.719 he sees things nobody else sees.

NOTE Confidence: 0.801101153333333

00:40:55.720 --> 00:40:56.851 And especially retrospectively

NOTE Confidence: 0.801101153333333

00:40:56.851 --> 00:40:58.359 he seems really accurate.

NOTE Confidence: 0.801101153333333

00:40:58.360 --> 00:41:00.880 You know, when he can look back.

NOTE Confidence: 0.801101153333333

00:41:00.880 --> 00:41:02.595 There are some things in what he

NOTE Confidence: 0.801101153333333

00:41:02.595 --> 00:41:04.164 wrote that that aren't wrong really
NOTE Confidence: 0.8011011533333333

00:41:04.164 --> 00:41:05.640 that we do need to be able to get
NOTE Confidence: 0.8011011533333333

00:41:05.686 --> 00:41:06.919 more standardized definitions.
NOTE Confidence: 0.8011011533333333

00:41:06.920 --> 00:41:09.233 We need to be able to understand this better.
NOTE Confidence: 0.8011011533333333

00:41:09.240 --> 00:41:12.096 And there's a risk that until we
NOTE Confidence: 0.8011011533333333

00:41:12.096 --> 00:41:14.720 get there that that it's fuzzy
NOTE Confidence: 0.8011011533333333

00:41:14.720 --> 00:41:16.676 but like that shouldn't deter us.
NOTE Confidence: 0.8011011533333333

00:41:16.680 --> 00:41:18.360 And it doesn't say that it doesn't
NOTE Confidence: 0.8011011533333333

00:41:18.360 --> 00:41:19.999 exist and it doesn't say that,
NOTE Confidence: 0.8011011533333333

00:41:20.000 --> 00:41:20.400 you know,
NOTE Confidence: 0.8011011533333333

00:41:20.400 --> 00:41:21.400 we shouldn't be pushing forward
NOTE Confidence: 0.8011011533333333

00:41:21.400 --> 00:41:22.360 to try to improve.
NOTE Confidence: 0.8011011533333333

00:41:22.360 --> 00:41:24.634 And I I mean the thing about this
NOTE Confidence: 0.8011011533333333

00:41:24.634 --> 00:41:26.552 is he's sort of on this bandwagon
NOTE Confidence: 0.8011011533333333

00:41:26.552 --> 00:41:28.594 about you know this when people say
NOTE Confidence: 0.8011011533333333

00:41:28.594 --> 00:41:30.956 that 25% of people have along COVID,

NOTE Confidence: 0.8011011533333333

00:41:30.960 --> 00:41:32.157 I don't I think that's too high.

NOTE Confidence: 0.8011011533333333

00:41:32.160 --> 00:41:34.085 I think I don't think that's probably

NOTE Confidence: 0.8011011533333333

00:41:34.085 --> 00:41:35.916 that high because what I'm talking

NOTE Confidence: 0.8011011533333333

00:41:35.916 --> 00:41:38.367 about are people like people on this on

NOTE Confidence: 0.8011011533333333

00:41:38.367 --> 00:41:39.812 our study who are severely suffering.

NOTE Confidence: 0.8011011533333333

00:41:39.812 --> 00:41:42.571 I mean it may be that a lot of people

NOTE Confidence: 0.8011011533333333

00:41:42.571 --> 00:41:44.039 are experiencing increased risk.

NOTE Confidence: 0.8011011533333333

00:41:44.040 --> 00:41:47.936 A lot of people post COVID post vaccine

NOTE Confidence: 0.8011011533333333

00:41:47.936 --> 00:41:49.728 are experiencing different symptoms

NOTE Confidence: 0.8011011533333333

00:41:49.728 --> 00:41:51.520 but severe debilitating illness.

NOTE Confidence: 0.8011011533333333

00:41:51.520 --> 00:41:52.756 I think that's probably a smaller

NOTE Confidence: 0.8011011533333333

00:41:52.756 --> 00:41:54.279 number but that you what's the truth?

NOTE Confidence: 0.8011011533333333

00:41:54.280 --> 00:41:55.492 We don't know.

NOTE Confidence: 0.8011011533333333

00:41:55.492 --> 00:41:57.108 There aren't good population

NOTE Confidence: 0.8011011533333333

00:41:57.108 --> 00:41:58.320 based epidemiologic studies.

NOTE Confidence: 0.8011011533333333

00:41:58.320 --> 00:42:00.120 So I'm ignorant about that.
NOTE Confidence: 0.8011011533333333

00:42:00.120 --> 00:42:00.456 I mean,
NOTE Confidence: 0.8011011533333333

00:42:00.456 --> 00:42:01.800 I don't know what the right number is.
NOTE Confidence: 0.8011011533333333

00:42:01.800 --> 00:42:03.396 I can have my own beliefs,
NOTE Confidence: 0.8011011533333333

00:42:03.400 --> 00:42:05.014 but I shouldn't be like standing
NOTE Confidence: 0.8011011533333333

00:42:05.014 --> 00:42:06.842 on a pedestal telling you what the
NOTE Confidence: 0.8011011533333333

00:42:06.842 --> 00:42:08.680 answer is when I don't really know it.
NOTE Confidence: 0.8011011533333333

00:42:08.680 --> 00:42:10.276 So that's how my my feelings,
NOTE Confidence: 0.8011011533333333

00:42:10.280 --> 00:42:11.984 I've got my feelings about what
NOTE Confidence: 0.8011011533333333

00:42:11.984 --> 00:42:13.975 the numbers might be but but we
NOTE Confidence: 0.8011011533333333

00:42:13.975 --> 00:42:15.115 don't know for sure.
NOTE Confidence: 0.8011011533333333

00:42:15.120 --> 00:42:17.096 What I do know is that the people
NOTE Confidence: 0.8011011533333333

00:42:17.096 --> 00:42:18.923 in this study are people whose
NOTE Confidence: 0.8011011533333333

00:42:18.923 --> 00:42:20.528 lives have been severely affected
NOTE Confidence: 0.8011011533333333

00:42:20.528 --> 00:42:22.399 by what they're experiencing.
NOTE Confidence: 0.8011011533333333

00:42:22.400 --> 00:42:24.305 And and there's a significant

NOTE Confidence: 0.8011011533333333
00:42:24.305 --> 00:42:27.079 number of people who are in this
NOTE Confidence: 0.8011011533333333
00:42:27.079 --> 00:42:28.760 situation and demands our attention.
NOTE Confidence: 0.8011011533333333
00:42:28.760 --> 00:42:30.360 So that Vinay Prasad thing,
NOTE Confidence: 0.8011011533333333
00:42:30.360 --> 00:42:33.052 I just thought it was unfortunate.
NOTE Confidence: 0.8011011533333333
00:42:33.052 --> 00:42:34.857 But you know to engage him is only
NOTE Confidence: 0.8011011533333333
00:42:34.857 --> 00:42:36.123 to amplify his message because you
NOTE Confidence: 0.8011011533333333
00:42:36.123 --> 00:42:37.692 give him attention. So you know what?
NOTE Confidence: 0.8011011533333333
00:42:37.692 --> 00:42:38.730 Akiko and I were sort of
NOTE Confidence: 0.73424752625
00:42:38.779 --> 00:42:40.312 talking about this and the answer so
NOTE Confidence: 0.73424752625
00:42:40.312 --> 00:42:41.798 like rather than just respond to it,
NOTE Confidence: 0.73424752625
00:42:41.800 --> 00:42:44.131 then that just gets more people talking
NOTE Confidence: 0.73424752625
00:42:44.131 --> 00:42:45.800 about him and that's what he wants.
NOTE Confidence: 0.73424752625
00:42:45.800 --> 00:42:47.924 And so I just like we just should keep
NOTE Confidence: 0.73424752625
00:42:47.924 --> 00:42:50.055 going with what what what we're doing
NOTE Confidence: 0.73424752625
00:42:50.055 --> 00:42:51.946 until we're forced unless we're forced
NOTE Confidence: 0.73424752625

00:42:51.946 --> 00:42:54.074 to to be in position after responsive.
NOTE Confidence: 0.73424752625

00:42:54.080 --> 00:42:56.872 I I wanted to tell you that what we're
NOTE Confidence: 0.73424752625

00:42:56.872 --> 00:42:58.664 we're going to pre print meaning we're
NOTE Confidence: 0.73424752625

00:42:58.664 --> 00:43:00.341 going to put out before going through
NOTE Confidence: 0.73424752625

00:43:00.341 --> 00:43:02.127 that year of peer review but just for
NOTE Confidence: 0.73424752625

00:43:02.127 --> 00:43:04.611 people to be able to see and every so
NOTE Confidence: 0.73424752625

00:43:04.611 --> 00:43:07.219 forth a piece on a post vaccination
NOTE Confidence: 0.73424752625

00:43:07.219 --> 00:43:09.410 syndrome or or vaccine tree that just
NOTE Confidence: 0.73424752625

00:43:09.467 --> 00:43:11.651 talks about the the people that are in
NOTE Confidence: 0.73424752625

00:43:11.651 --> 00:43:13.907 listen and and just describing them and
NOTE Confidence: 0.73424752625

00:43:13.907 --> 00:43:16.084 their experience and trying to get voice
NOTE Confidence: 0.73424752625

00:43:16.084 --> 00:43:17.918 to what they're what's they're going through.
NOTE Confidence: 0.73424752625

00:43:17.920 --> 00:43:18.880 We're going to do the
NOTE Confidence: 0.73424752625

00:43:18.880 --> 00:43:19.840 same thing for long COVID.
NOTE Confidence: 0.73424752625

00:43:19.840 --> 00:43:21.240 On the long COVID side,
NOTE Confidence: 0.73424752625

00:43:21.240 --> 00:43:22.962 it won't be nearly as novel because

NOTE Confidence: 0.73424752625

00:43:22.962 --> 00:43:24.620 other people have used surveys and

NOTE Confidence: 0.73424752625

00:43:24.620 --> 00:43:26.354 questionnaires to talk about the group.

NOTE Confidence: 0.73424752625

00:43:26.360 --> 00:43:27.956 But but for everyone and listen,

NOTE Confidence: 0.73424752625

00:43:27.960 --> 00:43:29.800 we just want to honor the fact that

NOTE Confidence: 0.73424752625

00:43:29.800 --> 00:43:31.347 people took time to fill this stuff

NOTE Confidence: 0.73424752625

00:43:31.347 --> 00:43:32.919 out and and put it out there.

NOTE Confidence: 0.73424752625

00:43:32.920 --> 00:43:33.434 You know,

NOTE Confidence: 0.73424752625

00:43:33.434 --> 00:43:35.233 this is what the listen cord is.

NOTE Confidence: 0.73424752625

00:43:35.240 --> 00:43:36.280 And whenever we do this,

NOTE Confidence: 0.73424752625

00:43:36.280 --> 00:43:37.274 we're going to let all of you

NOTE Confidence: 0.73424752625

00:43:37.274 --> 00:43:38.120 know that this is up there.

NOTE Confidence: 0.73424752625

00:43:38.120 --> 00:43:39.560 You can see it, you can pull it down.

NOTE Confidence: 0.73424752625

00:43:39.560 --> 00:43:41.112 We can have more town halls talk about

NOTE Confidence: 0.73424752625

00:43:41.112 --> 00:43:42.789 them and we're going to the the analysis

NOTE Confidence: 0.73424752625

00:43:42.789 --> 00:43:44.279 you just saw about the comparison.

NOTE Confidence: 0.73424752625

00:43:44.280 --> 00:43:46.440 We're also going to post.
NOTE Confidence: 0.73424752625

00:43:46.440 --> 00:43:49.216 So for people to see and read and to
NOTE Confidence: 0.73424752625

00:43:49.216 --> 00:43:51.704 and comment on, when it's a preprint,
NOTE Confidence: 0.73424752625

00:43:51.704 --> 00:43:54.420 it means it's put up on the web
NOTE Confidence: 0.73424752625

00:43:54.420 --> 00:43:55.916 as an enduring artifact,
NOTE Confidence: 0.73424752625

00:43:55.920 --> 00:43:58.279 meaning it's it's going to be permanent,
NOTE Confidence: 0.73424752625

00:43:58.280 --> 00:44:00.672 but that there are plenty of comments people
NOTE Confidence: 0.73424752625

00:44:00.672 --> 00:44:03.360 can make and we can revise it and version it.
NOTE Confidence: 0.73424752625

00:44:03.360 --> 00:44:04.146 So you know,
NOTE Confidence: 0.73424752625

00:44:04.146 --> 00:44:05.718 the point is that it's work
NOTE Confidence: 0.73424752625

00:44:05.718 --> 00:44:06.959 in progress there.
NOTE Confidence: 0.73424752625

00:44:06.960 --> 00:44:08.888 Here it is and all of you should
NOTE Confidence: 0.73424752625

00:44:08.888 --> 00:44:10.878 read it and give us feedback and
NOTE Confidence: 0.73424752625

00:44:10.878 --> 00:44:12.799 then we can continue to refine
NOTE Confidence: 0.73424752625

00:44:12.799 --> 00:44:14.439 the contribution over time.
NOTE Confidence: 0.73424752625

00:44:14.440 --> 00:44:16.136 We also want to do a piece where

NOTE Confidence: 0.73424752625
00:44:16.136 --> 00:44:17.716 we're going to take advantage of
NOTE Confidence: 0.73424752625
00:44:17.716 --> 00:44:19.366 people who have linked their medical
NOTE Confidence: 0.73424752625
00:44:19.421 --> 00:44:21.512 records so that we can give some
NOTE Confidence: 0.73424752625
00:44:21.512 --> 00:44:22.680 insight into healthcare utilization,
NOTE Confidence: 0.73424752625
00:44:22.680 --> 00:44:24.304 what kind of and mostly like how
NOTE Confidence: 0.73424752625
00:44:24.304 --> 00:44:25.878 people have had to bounce around,
NOTE Confidence: 0.73424752625
00:44:25.880 --> 00:44:27.175 what kind of testing has been done
NOTE Confidence: 0.73424752625
00:44:27.175 --> 00:44:28.495 or what's in just sort of describe
NOTE Confidence: 0.73424752625
00:44:28.495 --> 00:44:29.929 that we would like to be able to
NOTE Confidence: 0.73424752625
00:44:29.929 --> 00:44:31.153 do that we'd like to be able to
NOTE Confidence: 0.73424752625
00:44:31.160 --> 00:44:33.320 do something with with wearables.
NOTE Confidence: 0.73424752625
00:44:33.320 --> 00:44:35.360 Somebody sent in a question about
NOTE Confidence: 0.73424752625
00:44:35.360 --> 00:44:36.377 heart rate variability.
NOTE Confidence: 0.73424752625
00:44:36.377 --> 00:44:38.736 I don't think we really know it's
NOTE Confidence: 0.73424752625
00:44:38.736 --> 00:44:40.800 very tied to autonomic function,
NOTE Confidence: 0.73424752625

00:44:40.800 --> 00:44:43.278 more variability is thought to be good.

NOTE Confidence: 0.73424752625

00:44:43.280 --> 00:44:46.245 This sort of chaos of the variability,

NOTE Confidence: 0.73424752625

00:44:46.245 --> 00:44:46.815 the meaning,

NOTE Confidence: 0.73424752625

00:44:46.815 --> 00:44:48.810 the this sort of fact that it's

NOTE Confidence: 0.73424752625

00:44:48.860 --> 00:44:49.760 not a predictable,

NOTE Confidence: 0.73424752625

00:44:49.760 --> 00:44:51.836 but it's actually not so predictable.

NOTE Confidence: 0.73424752625

00:44:51.840 --> 00:44:53.112 It's meant to be kind of

NOTE Confidence: 0.73424752625

00:44:53.112 --> 00:44:53.960 the complexity of it.

NOTE Confidence: 0.73424752625

00:44:53.960 --> 00:44:55.478 It's how people talk about it,

NOTE Confidence: 0.959313164

00:44:55.480 --> 00:44:56.640 of your heart rate variability,

NOTE Confidence: 0.959313164

00:44:56.640 --> 00:44:58.796 which means you've got a heart rate,

NOTE Confidence: 0.959313164

00:44:58.800 --> 00:45:00.080 but actually there are many

NOTE Confidence: 0.959313164

00:45:00.080 --> 00:45:01.360 variations in that heart rate.

NOTE Confidence: 0.959313164

00:45:01.360 --> 00:45:03.997 Even if your rate is 90 beats per minute,

NOTE Confidence: 0.959313164

00:45:04.000 --> 00:45:06.170 each beat is not exactly the same

NOTE Confidence: 0.959313164

00:45:06.170 --> 00:45:08.040 as distance from the last beat.

NOTE Confidence: 0.959313164
00:45:08.040 --> 00:45:09.328 There's minor variations and
NOTE Confidence: 0.959313164
00:45:09.328 --> 00:45:10.616 the heart rate variability
NOTE Confidence: 0.959313164
00:45:10.616 --> 00:45:12.478 picks up those minor variations,
NOTE Confidence: 0.959313164
00:45:12.480 --> 00:45:14.705 which is associated with your
NOTE Confidence: 0.959313164
00:45:14.705 --> 00:45:16.630 autonomic health in essence.
NOTE Confidence: 0.959313164
00:45:16.630 --> 00:45:19.720 And that more complexity is better,
NOTE Confidence: 0.959313164
00:45:19.720 --> 00:45:20.376 less complex is worse.
NOTE Confidence: 0.959313164
00:45:20.376 --> 00:45:21.436 But I can tell you, like,
NOTE Confidence: 0.959313164
00:45:21.436 --> 00:45:23.880 I have a bunch of wearables and I don't know,
NOTE Confidence: 0.959313164
00:45:23.880 --> 00:45:24.760 like sometimes it says my
NOTE Confidence: 0.959313164
00:45:24.760 --> 00:45:25.640 heart rate variability is low,
NOTE Confidence: 0.959313164
00:45:25.640 --> 00:45:26.400 sometimes it says it's high.
NOTE Confidence: 0.959313164
00:45:26.400 --> 00:45:28.234 I don't even know what that means.
NOTE Confidence: 0.959313164
00:45:28.240 --> 00:45:29.997 And I don't have a chronic condition.
NOTE Confidence: 0.959313164
00:45:30.000 --> 00:45:32.840 So I I there's a lot to learn about this.
NOTE Confidence: 0.959313164

00:45:32.840 --> 00:45:34.040 But you know,
NOTE Confidence: 0.959313164

00:45:34.040 --> 00:45:36.191 if if it may be that enough people at
NOTE Confidence: 0.959313164

00:45:36.191 --> 00:45:37.538 some point will have connected their
NOTE Confidence: 0.959313164

00:45:37.538 --> 00:45:39.211 wearables and we can start looking at
NOTE Confidence: 0.959313164

00:45:39.255 --> 00:45:40.725 some of the data and correlating it
NOTE Confidence: 0.959313164

00:45:40.725 --> 00:45:42.492 to symptoms and how people are doing.
NOTE Confidence: 0.959313164

00:45:42.492 --> 00:45:44.686 But the last thing I wanted to say
NOTE Confidence: 0.959313164

00:45:44.686 --> 00:45:46.506 was that we're going to try to do a
NOTE Confidence: 0.959313164

00:45:46.506 --> 00:45:47.824 longitudinal study and see how many
NOTE Confidence: 0.959313164

00:45:47.824 --> 00:45:49.888 people entered. Listen and got better.
NOTE Confidence: 0.959313164

00:45:49.888 --> 00:45:53.079 And who were those people and and what?
NOTE Confidence: 0.959313164

00:45:53.080 --> 00:45:54.480 What? What can we learn from them?
NOTE Confidence: 0.959313164

00:45:54.480 --> 00:45:56.768 So we want to launch a longitudinal study
NOTE Confidence: 0.959313164

00:45:56.768 --> 00:45:58.840 where there's going to be a second.
NOTE Confidence: 0.959313164

00:45:58.840 --> 00:46:00.919 We'll contact everyone and try to get
NOTE Confidence: 0.959313164

00:46:00.919 --> 00:46:02.920 everyone to fill out a second survey

NOTE Confidence: 0.959313164

00:46:02.920 --> 00:46:04.240 and try to figure out who got better,

NOTE Confidence: 0.959313164

00:46:04.240 --> 00:46:05.638 who got worse, you know what,

NOTE Confidence: 0.959313164

00:46:05.640 --> 00:46:07.356 what kind of differences are there?

NOTE Confidence: 0.959313164

00:46:07.360 --> 00:46:09.600 And see if we can learn something

NOTE Confidence: 0.959313164

00:46:09.600 --> 00:46:10.560 from that change.

NOTE Confidence: 0.959313164

00:46:10.560 --> 00:46:12.185 And so there'll be more

NOTE Confidence: 0.959313164

00:46:12.185 --> 00:46:13.160 information about that,

NOTE Confidence: 0.959313164

00:46:13.160 --> 00:46:15.320 but that's what what we're seeing.

NOTE Confidence: 0.959313164

00:46:15.320 --> 00:46:18.080 And then we're going to,

NOTE Confidence: 0.959313164

00:46:18.080 --> 00:46:19.800 I mean the most important work we're doing.

NOTE Confidence: 0.959313164

00:46:19.800 --> 00:46:19.950 Well,

NOTE Confidence: 0.959313164

00:46:19.950 --> 00:46:20.850 let me say a very important

NOTE Confidence: 0.959313164

00:46:20.850 --> 00:46:21.520 work that we're doing.

NOTE Confidence: 0.959313164

00:46:21.520 --> 00:46:23.068 I actually think the most important

NOTE Confidence: 0.959313164

00:46:23.068 --> 00:46:24.794 work is what that we're doing

NOTE Confidence: 0.959313164

00:46:24.794 --> 00:46:26.440 in collaboration with the lab.

NOTE Confidence: 0.959313164

00:46:26.440 --> 00:46:27.800 And as Akiko said,

NOTE Confidence: 0.959313164

00:46:27.800 --> 00:46:29.732 the insights will come out of the

NOTE Confidence: 0.959313164

00:46:29.732 --> 00:46:31.884 fact of trying to draw patterns of

NOTE Confidence: 0.959313164

00:46:31.884 --> 00:46:33.780 what you guys are experiencing with

NOTE Confidence: 0.959313164

00:46:33.842 --> 00:46:35.737 what's being reflected through the

NOTE Confidence: 0.959313164

00:46:35.737 --> 00:46:37.632 biology in trying to understand

NOTE Confidence: 0.959313164

00:46:37.640 --> 00:46:39.746 what how that can translate into

NOTE Confidence: 0.959313164

00:46:39.746 --> 00:46:40.799 diagnostics and therapeutics.

NOTE Confidence: 0.959313164

00:46:40.800 --> 00:46:42.048 So we're going to try to double down

NOTE Confidence: 0.959313164

00:46:42.048 --> 00:46:43.360 on what we call extreme phenotypes.

NOTE Confidence: 0.959313164

00:46:43.360 --> 00:46:45.375 So maybe the people experiencing

NOTE Confidence: 0.959313164

00:46:45.375 --> 00:46:47.390 the most extreme symptoms within

NOTE Confidence: 0.959313164

00:46:47.458 --> 00:46:49.495 a within a thing like internal

NOTE Confidence: 0.959313164

00:46:49.495 --> 00:46:52.180 vibrations and and and tremors or

NOTE Confidence: 0.959313164

00:46:52.180 --> 00:46:54.592 or you know POTS or something,

NOTE Confidence: 0.959313164

00:46:54.592 --> 00:46:56.720 you know look at a couple different

NOTE Confidence: 0.959313164

00:46:56.782 --> 00:46:59.442 groups and see do they have are there

NOTE Confidence: 0.959313164

00:46:59.442 --> 00:47:00.947 signals in their immune signatures

NOTE Confidence: 0.959313164

00:47:00.947 --> 00:47:02.542 that are that are differentiating

NOTE Confidence: 0.959313164

00:47:02.542 --> 00:47:04.444 them based on that and including

NOTE Confidence: 0.959313164

00:47:04.444 --> 00:47:06.120 you know people in both groups

NOTE Confidence: 0.959313164

00:47:06.120 --> 00:47:07.160 are having those symptoms.

NOTE Confidence: 0.959313164

00:47:07.160 --> 00:47:07.343 So.

NOTE Confidence: 0.959313164

00:47:07.343 --> 00:47:09.287 So we'd be able to try to do that but

NOTE Confidence: 0.959313164

00:47:09.287 --> 00:47:10.988 that that's sort of on the horizon

NOTE Confidence: 0.959313164

00:47:10.988 --> 00:47:13.558 what we're thinking trying to do.

NOTE Confidence: 0.959313164

00:47:13.560 --> 00:47:15.720 So with that I know we're at time.

NOTE Confidence: 0.959313164

00:47:15.720 --> 00:47:15.953 Kiko,

NOTE Confidence: 0.959313164

00:47:15.953 --> 00:47:18.440 let me hand it over to you for final words.

NOTE Confidence: 0.959313164

00:47:18.440 --> 00:47:20.294 And also to thank our team

NOTE Confidence: 0.959313164

00:47:20.294 --> 00:47:21.530 and our students and
NOTE Confidence: 0.934317404814815

00:47:21.602 --> 00:47:23.954 all the people who have been involved
NOTE Confidence: 0.934317404814815

00:47:23.954 --> 00:47:26.042 on the listen side and particularly
NOTE Confidence: 0.934317404814815

00:47:26.042 --> 00:47:28.288 all of you who are pioneering this
NOTE Confidence: 0.934317404814815

00:47:28.288 --> 00:47:30.360 kind of new approach with us and
NOTE Confidence: 0.934317404814815

00:47:30.360 --> 00:47:33.132 have have trusted that we're trying
NOTE Confidence: 0.934317404814815

00:47:33.132 --> 00:47:34.842 to get this right and recognize that
NOTE Confidence: 0.934317404814815

00:47:34.842 --> 00:47:36.159 we're not always going to be right.
NOTE Confidence: 0.934317404814815

00:47:36.160 --> 00:47:38.920 So we need your help to to learn as we go.
NOTE Confidence: 0.934317404814815

00:47:38.920 --> 00:47:39.799 So, Akiko. Yeah.
NOTE Confidence: 0.809033431428571

00:47:40.920 --> 00:47:42.255 Thank you, Harlan.
NOTE Confidence: 0.809033431428571

00:47:42.255 --> 00:47:45.240 So as someone who's, you know,
NOTE Confidence: 0.809033431428571

00:47:45.240 --> 00:47:48.240 experienced being minimized or dismissed
NOTE Confidence: 0.809033431428571

00:47:48.240 --> 00:47:51.360 and discriminated against in as a
NOTE Confidence: 0.809033431428571

00:47:51.360 --> 00:47:54.000 woman in science throughout my life,
NOTE Confidence: 0.809033431428571

00:47:54.000 --> 00:47:56.576 I find that the best defense against

NOTE Confidence: 0.809033431428571
00:47:56.576 --> 00:47:58.540 minimizers is irrefutable science.
NOTE Confidence: 0.809033431428571
00:47:58.540 --> 00:48:02.200 So we're here to provide that
NOTE Confidence: 0.809033431428571
00:48:02.200 --> 00:48:04.300 irrefutable evidence of disease
NOTE Confidence: 0.809033431428571
00:48:04.300 --> 00:48:06.400 and markers and therapies.
NOTE Confidence: 0.809033431428571
00:48:06.400 --> 00:48:07.336 And so you know,
NOTE Confidence: 0.809033431428571
00:48:07.336 --> 00:48:09.280 collectively we will be able to get there.
NOTE Confidence: 0.809033431428571
00:48:09.280 --> 00:48:11.674 And I'm really grateful for my partnership
NOTE Confidence: 0.809033431428571
00:48:11.674 --> 00:48:13.688 with Harlan and his team without
NOTE Confidence: 0.809033431428571
00:48:13.688 --> 00:48:15.837 whom none of this can be happening.
NOTE Confidence: 0.809033431428571
00:48:15.840 --> 00:48:18.036 So really appreciate all of you.
NOTE Confidence: 0.809033431428571
00:48:18.040 --> 00:48:19.864 And thank you, some of you for showing
NOTE Confidence: 0.809033431428571
00:48:19.864 --> 00:48:21.556 your face and being brave out here.
NOTE Confidence: 0.809033431428571
00:48:21.560 --> 00:48:23.016 And really appreciate being
NOTE Confidence: 0.809033431428571
00:48:23.016 --> 00:48:25.200 able to see who you are.
NOTE Confidence: 0.809033431428571
00:48:25.200 --> 00:48:26.742 And really grateful.
NOTE Confidence: 0.809033431428571

00:48:26.742 --> 00:48:28.798 Thank you so much.

NOTE Confidence: 0.636400491428571

00:48:28.960 --> 00:48:30.808 Yeah. Making a mistake.

NOTE Confidence: 0.636400491428571

00:48:30.808 --> 00:48:32.640 Akiko's our captain. Thank you.

NOTE Confidence: 0.951398784

00:48:33.840 --> 00:48:36.040 Thank you so much. Bye, bye. Thank you all.