WEBVTT

NOTE duration: ”01:03:14.858”

NOTE Confidence: 0.99007607

00:00:01.199 --> 00:00:02.720 Hi. Good afternoon, everyone. We've

NOTE Confidence: 0.99007607

00:00:02.720 --> 00:00:04.100 had a bit of technical

NOTE Confidence: 0.99007607

00:00:04.160 --> 00:00:05.220 difficulties, but

NOTE Confidence: 0.9840329

00:00:05.680 --> 00:00:07.140 I'm, pleased to

NOTE Confidence: 0.7985436

00:00:08.080 --> 00:00:08.900 to introduce,

NOTE Confidence: 0.7079411

00:00:09.360 --> 00:00:10.980 Matt Alberg who is,

NOTE Confidence: 0.98776066

00:00:11.840 --> 00:00:13.244 based at the University of

NOTE Confidence: 0.98776066

00:00:13.485 --> 00:00:15.005 Vermont. Matt, we are really

NOTE Confidence: 0.98776066

00:00:15.005 --> 00:00:16.465 excited to hear from you.

NOTE Confidence: 0.9731692

00:00:16.845 --> 00:00:18.045 Matt has a background as

NOTE Confidence: 0.9731692

00:00:18.045 --> 00:00:19.904 a clinical psychologist and

NOTE Confidence: 0.82094043

00:00:20.204 --> 00:00:21.185 and is a neuroscientist

NOTE Confidence: 0.802079

00:00:21.645 --> 00:00:23.805 where he did his training

NOTE Confidence: 0.802079

00:00:23.805 --> 00:00:24.285 both,

NOTE Confidence: 0.9953739

00:00:25.404 --> 00:00:27.185 both his neuroscience and and

NOTE Confidence: 0.9953739

00:00:27.244 --> 00:00:28.705 psychology training at

NOTE Confidence: 0.93722314

00:00:29.039 --> 00:00:30.179 University of Vermont,

NOTE Confidence: 0.98746926

00:00:31.119 --> 00:00:32.399 and we are delighted to

NOTE Confidence: 0.98746926

00:00:32.399 --> 00:00:32.960 have him.

NOTE Confidence: 0.87330145

00:00:33.440 --> 00:00:35.120 So please welcome me in

NOTE Confidence: 0.87330145

00:00:35.520 --> 00:00:36.640 oh, wait. Well, please join

NOTE Confidence: 0.87330145

00:00:36.640 --> 00:00:38.260 me in welcoming Matt.

NOTE Confidence: 0.9540545

00:00:39.360 --> 00:00:40.800 And, hopefully, Matt, you can

NOTE Confidence: 0.9540545

00:00:40.960 --> 00:00:42.899 you have all everything working.

NOTE Confidence: 0.9743771

00:00:43.805 --> 00:00:45.565 Yeah. Yeah. I'll, I'll I'll

NOTE Confidence: 0.9743771

00:00:45.565 --> 00:00:47.245 see if I can start

NOTE Confidence: 0.9743771

00:00:47.245 --> 00:00:47.745 sharing,

NOTE Confidence: 0.9909664

00:00:48.125 --> 00:00:49.505 my Slack set here.

NOTE Confidence: 0.9986888

00:00:50.845 --> 00:00:51.745 Let's see.

NOTE Confidence: 0.80564976

00:00:57.600 --> 00:00:58.100 Alright.

NOTE Confidence: 0.9984579

00:00:59.840 --> 00:01:01.120 Great. Yeah. We can see

NOTE Confidence: 0.9984579

00:01:01.120 --> 00:01:01.780 your screen.

NOTE Confidence: 0.99662364

00:01:04.080 --> 00:01:04.580 Great.

NOTE Confidence: 0.8862221

00:01:05.600 --> 00:01:06.580 Perfect. Perfect.

NOTE Confidence: 0.9678487

00:01:07.200 --> 00:01:08.159 And you can hear me

NOTE Confidence: 0.9678487

00:01:08.159 --> 00:01:08.659 okay?

NOTE Confidence: 0.9694142

00:01:12.215 --> 00:01:13.655 Yes. Great. Yeah. We had

NOTE Confidence: 0.9694142

00:01:13.655 --> 00:01:16.215 some, construction going on earlier,

NOTE Confidence: 0.9694142

00:01:16.215 --> 00:01:17.735 so I'm I'm hoping that

NOTE Confidence: 0.9694142

00:01:17.735 --> 00:01:18.235 they

NOTE Confidence: 0.9959564

00:01:18.694 --> 00:01:19.914 that they hold off.

NOTE Confidence: 0.9757396

00:01:21.494 --> 00:01:21.994 Well,

NOTE Confidence: 0.99229366

00:01:22.295 --> 00:01:23.414 thank you so much. I

NOTE Confidence: 0.99229366

00:01:23.414 --> 00:01:24.690 really appreciate,

NOTE Confidence: 0.92621046

00:01:25.390 --> 00:01:26.909 the warm welcome and and

NOTE Confidence: 0.92621046

00:01:26.909 --> 00:01:27.810 and the invitation,

NOTE Confidence: 0.987192

00:01:28.510 --> 00:01:30.209 doctor D'Souza. This is

NOTE Confidence: 0.8726244

00:01:30.670 --> 00:01:31.650 exciting to

NOTE Confidence: 0.96632135

00:01:32.430 --> 00:01:34.110 to tell tell you, in

NOTE Confidence: 0.96632135

00:01:34.110 --> 00:01:35.150 in your center a little

NOTE Confidence: 0.96632135

00:01:35.150 --> 00:01:36.190 bit about some of the

NOTE Confidence: 0.96632135

00:01:36.190 --> 00:01:37.810 work, that we've been

NOTE Confidence: 0.99305594

00:01:38.155 --> 00:01:39.855 up to, at the University

NOTE Confidence: 0.99305594

00:01:39.995 --> 00:01:40.655 of Vermont.

NOTE Confidence: 0.95471966

00:01:42.875 --> 00:01:43.915 So I I guess I

NOTE Confidence: 0.95471966

00:01:43.915 --> 00:01:45.675 will just, jump right into

NOTE Confidence: 0.95471966

00:01:45.675 --> 00:01:47.535 it if that's alright. Yeah.

NOTE Confidence: 0.9527978

00:01:48.475 --> 00:01:49.915 Great. So, I I don't

NOTE Confidence: 0.9527978

00:01:49.915 --> 00:01:50.795 I don't have any,

NOTE Confidence: 0.909251

00:01:51.800 --> 00:01:53.260 conflicts to disclose.

NOTE Confidence: 0.9842542

00:01:56.600 --> 00:01:57.960 And just kind of a

NOTE Confidence: 0.9842542

00:01:57.960 --> 00:01:58.460 general

NOTE Confidence: 0.9647959

00:01:58.840 --> 00:02:00.300 outline for today.

NOTE Confidence: 0.9684477

00:02:01.000 --> 00:02:02.440 So, you know, we'll we'll

NOTE Confidence: 0.9684477

00:02:02.440 --> 00:02:04.380 maybe start just very briefly

NOTE Confidence: 0.99884635

00:02:05.005 --> 00:02:06.285 talking a little bit about

NOTE Confidence: 0.99884635

00:02:06.285 --> 00:02:08.465 the evolving cannabis landscape.

NOTE Confidence: 0.9914717

00:02:08.845 --> 00:02:10.205 I'm sure it's something we're

NOTE Confidence: 0.9914717

00:02:10.205 --> 00:02:11.245 all very aware of, but

NOTE Confidence: 0.9914717

00:02:11.245 --> 00:02:13.505 just providing a little context,

NOTE Confidence: 0.98809385

00:02:14.044 --> 00:02:14.925 for some of the work

NOTE Confidence: 0.98809385

00:02:14.925 --> 00:02:16.525 we've done. And then we'll

NOTE Confidence: 0.98809385

00:02:16.525 --> 00:02:17.645 jump right into some of

NOTE Confidence: 0.98809385

00:02:17.645 --> 00:02:18.044 the,

NOTE Confidence: 0.9663687

00:02:18.445 --> 00:02:20.385 longitudinal imaging findings,

NOTE Confidence: 0.97778404

00:02:21.020 --> 00:02:22.380 that that we've been involved

NOTE Confidence: 0.97778404

00:02:22.380 --> 00:02:23.920 in, here at UVM.

NOTE Confidence: 0.97905827

00:02:24.860 --> 00:02:26.780 And and these analyses have

NOTE Confidence: 0.97905827

00:02:26.780 --> 00:02:27.920 primarily involved,

NOTE Confidence: 0.9844074

00:02:28.380 --> 00:02:30.139 the imaging cohort that I'll

NOTE Confidence: 0.9844074

00:02:30.139 --> 00:02:31.340 touch on a little bit

NOTE Confidence: 0.9844074

00:02:31.340 --> 00:02:32.400 later in the presentation.

NOTE Confidence: 0.98358357

00:02:33.245 --> 00:02:34.364 And then, hopefully, we'll have

NOTE Confidence: 0.98358357

00:02:34.364 --> 00:02:35.724 time. I can I can

NOTE Confidence: 0.98358357

00:02:35.724 --> 00:02:37.084 share a little bit, some

NOTE Confidence: 0.98358357

00:02:37.084 --> 00:02:38.465 of the ongoing projects,

NOTE Confidence: 0.95765716

00:02:39.245 --> 00:02:40.444 that are going on in

NOTE Confidence: 0.95765716

00:02:40.444 --> 00:02:42.204 the lab? So here here

NOTE Confidence: 0.95765716

00:02:42.204 --> 00:02:44.465 is, my disclosure slide then.

NOTE Confidence: 0.96797615

00:02:46.150 --> 00:02:46.650 And

NOTE Confidence: 0.9566408

00:02:47.430 --> 00:02:48.630 sorry about that. I'm not

NOTE Confidence: 0.9566408

00:02:48.630 --> 00:02:49.530 sure what happened.

NOTE Confidence: 0.6673434

00:02:50.790 --> 00:02:51.290 And

NOTE Confidence: 0.9958035

00:02:51.669 --> 00:02:53.530 here is the outline.

NOTE Confidence: 0.9811121

00:02:54.550 --> 00:02:55.910 So, as I was saying,

NOTE Confidence: 0.9811121

00:02:55.910 --> 00:02:57.669 if we have time, hopefully,

NOTE Confidence: 0.9811121

00:02:57.669 --> 00:02:58.710 we will. We'll touch on

NOTE Confidence: 0.9811121

00:02:58.710 --> 00:03:00.150 some of the work, that's

NOTE Confidence: 0.9811121

00:03:00.150 --> 00:03:01.770 that's ongoing in the lab

NOTE Confidence: 0.8988857

00:03:02.135 --> 00:03:03.495 involving a, b, c, d

NOTE Confidence: 0.8988857

00:03:03.495 --> 00:03:04.555 data and imaging.

NOTE Confidence: 0.9896369

00:03:05.255 --> 00:03:06.935 And then, we'll wrap up

NOTE Confidence: 0.9896369

00:03:06.935 --> 00:03:07.755 with some,

NOTE Confidence: 0.99003005

00:03:08.615 --> 00:03:10.775 concluding remarks and and, some

NOTE Confidence: 0.99003005

00:03:10.775 --> 00:03:11.915 some future directions.

NOTE Confidence: 0.99388325

00:03:13.735 --> 00:03:15.255 But before we before we

NOTE Confidence: 0.99388325

00:03:15.255 --> 00:03:16.620 get into it, you know,

NOTE Confidence: 0.99388325

00:03:16.620 --> 00:03:17.659 I I still feel like

NOTE Confidence: 0.99388325

00:03:17.659 --> 00:03:18.560 I'm I'm relatively

NOTE Confidence: 0.9437523

00:03:19.019 --> 00:03:19.519 new,

NOTE Confidence: 0.87916815

00:03:20.620 --> 00:03:22.239 in this in this space.

NOTE Confidence: 0.98208237

00:03:23.980 --> 00:03:25.180 And, you know, going back

NOTE Confidence: 0.98208237

00:03:25.180 --> 00:03:26.220 a few years ago when

NOTE Confidence: 0.98208237

00:03:26.220 --> 00:03:28.060 we first started this line

NOTE Confidence: 0.98208237

00:03:28.060 --> 00:03:28.799 of research,

NOTE Confidence: 0.9653158

00:03:29.675 --> 00:03:30.635 I I think I was

NOTE Confidence: 0.9653158

00:03:30.635 --> 00:03:31.455 very naive,

NOTE Confidence: 0.999762

00:03:32.475 --> 00:03:32.975 with

NOTE Confidence: 0.9760867

00:03:33.514 --> 00:03:34.895 just how this,

NOTE Confidence: 0.99181706

00:03:35.355 --> 00:03:36.475 would be covered and kind

NOTE Confidence: 0.99181706

00:03:36.475 --> 00:03:37.995 of what the reaction would

NOTE Confidence: 0.99181706

00:03:37.995 --> 00:03:38.495 be.

NOTE Confidence: 0.9897144

00:03:39.675 --> 00:03:40.955 Some of our early work,

NOTE Confidence: 0.9897144

00:03:41.275 --> 00:03:42.475 ended up in a number

NOTE Confidence: 0.9897144

00:03:42.475 --> 00:03:42.870 of,

NOTE Confidence: 0.9023384

00:03:43.430 --> 00:03:45.269 you know, very very social

NOTE Confidence: 0.9023384

00:03:45.269 --> 00:03:46.250 media streams.

NOTE Confidence: 0.9890385

00:03:46.790 --> 00:03:48.330 I made the horrible mistake

NOTE Confidence: 0.9890385

00:03:48.390 --> 00:03:50.090 of going down the wormhole

NOTE Confidence: 0.9890385

00:03:50.310 --> 00:03:50.810 of,

NOTE Confidence: 0.9796758

00:03:51.510 --> 00:03:52.010 like,

NOTE Confidence: 0.97207546

00:03:52.310 --> 00:03:53.430 looking at some of the

NOTE Confidence: 0.97207546

00:03:53.430 --> 00:03:53.930 comments,

NOTE Confidence: 0.9855367

00:03:55.430 --> 00:03:56.709 and, you know, this is

NOTE Confidence: 0.9855367

00:03:56.709 --> 00:03:58.595 just a small sampling

NOTE Confidence: 0.93834704

00:03:59.534 --> 00:04:00.894 of some of the comments

NOTE Confidence: 0.93834704

00:04:00.894 --> 00:04:02.435 out of hundreds and hundreds.

NOTE Confidence: 0.9798814

00:04:03.935 --> 00:04:06.095 But everything from why didn't

NOTE Confidence: 0.9798814

00:04:06.095 --> 00:04:07.555 we look at alcohol

NOTE Confidence: 0.88301015

00:04:07.935 --> 00:04:08.754 and tobacco,

NOTE Confidence: 0.5821711

00:04:10.334 --> 00:04:10.834 products,

NOTE Confidence: 0.9185729

00:04:12.159 --> 00:04:13.840 were we sponsored by the

NOTE Confidence: 0.9185729

00:04:13.840 --> 00:04:16.260 alcohol industry or or the

NOTE Confidence: 0.9185729

00:04:16.320 --> 00:04:17.539 tobacco industry?

NOTE Confidence: 0.9756558

00:04:18.560 --> 00:04:19.759 We have people claiming to

NOTE Confidence: 0.9756558

00:04:19.759 --> 00:04:20.960 have IQs of a hundred

NOTE Confidence: 0.9756558

00:04:20.960 --> 00:04:22.000 and fifty four, and they've

NOTE Confidence: 0.9756558

00:04:22.000 --> 00:04:23.199 been using cannabis their whole

NOTE Confidence: 0.9756558

00:04:23.199 --> 00:04:24.720 life. Clearly, this is, you

NOTE Confidence: 0.9756558

00:04:24.720 --> 00:04:26.500 know, this research is flawed.

NOTE Confidence: 0.9652913

00:04:27.175 --> 00:04:28.455 And then also some some

NOTE Confidence: 0.9652913

00:04:28.455 --> 00:04:29.835 actually, you know, fairly

NOTE Confidence: 0.9639058

00:04:30.215 --> 00:04:30.715 accurate,

NOTE Confidence: 0.97211206

00:04:31.415 --> 00:04:32.935 comments, even though we tried

NOTE Confidence: 0.97211206

00:04:32.935 --> 00:04:33.895 our best in some of

NOTE Confidence: 0.97211206

00:04:33.895 --> 00:04:34.715 our, you know,

NOTE Confidence: 0.95481616

00:04:35.175 --> 00:04:37.035 initial papers to make clear

NOTE Confidence: 0.95481616

00:04:37.175 --> 00:04:37.835 the limitations.

NOTE Confidence: 0.9895297

00:04:39.015 --> 00:04:39.595 You know,

NOTE Confidence: 0.97435254

00:04:40.055 --> 00:04:42.155 we're working with inherently observational

NOTE Confidence: 0.97435254

00:04:42.375 --> 00:04:42.875 data.

NOTE Confidence: 0.76597553

00:04:44.430 --> 00:04:45.569 But anyway,

NOTE Confidence: 0.89443433

00:04:46.190 --> 00:04:47.490 all of this to say,

NOTE Confidence: 0.9297258

00:04:47.949 --> 00:04:49.569 just kind of an additional,

NOTE Confidence: 0.90665346

00:04:50.589 --> 00:04:52.130 disclaimer here that,

NOTE Confidence: 0.98837936

00:04:54.750 --> 00:04:56.589 just because, you know, we're

NOTE Confidence: 0.98837936

00:04:56.589 --> 00:04:58.130 we're we're looking at

NOTE Confidence: 0.9968417

00:04:58.904 --> 00:05:01.005 potential effects of cannabis use,

NOTE Confidence: 0.96238583

00:05:01.865 --> 00:05:04.025 especially during adolescence and early

NOTE Confidence: 0.96238583

00:05:04.025 --> 00:05:04.525 adulthood,

NOTE Confidence: 0.9918337

00:05:05.385 --> 00:05:06.445 we're certainly

NOTE Confidence: 0.9998622

00:05:06.985 --> 00:05:07.805 not suggesting

NOTE Confidence: 0.99813336

00:05:08.345 --> 00:05:08.825 that,

NOTE Confidence: 0.9807843

00:05:09.385 --> 00:05:11.085 you know, other substances

NOTE Confidence: 0.998412

00:05:11.545 --> 00:05:12.285 are safe.

NOTE Confidence: 0.9913609

00:05:13.540 --> 00:05:14.660 There seems to be, you

NOTE Confidence: 0.9913609

00:05:14.660 --> 00:05:16.260 know, quite a literature with

NOTE Confidence: 0.9913609

00:05:16.260 --> 00:05:17.880 respect to alcohol

NOTE Confidence: 0.7874258

00:05:18.260 --> 00:05:19.880 and cigarette smoking.

NOTE Confidence: 0.95683515

00:05:21.460 --> 00:05:23.540 And, you know, we were

NOTE Confidence: 0.95683515

00:05:23.540 --> 00:05:24.900 kind of reacting to what

NOTE Confidence: 0.95683515

00:05:24.900 --> 00:05:26.580 looked like a relatively sparse

NOTE Confidence: 0.95683515

00:05:26.580 --> 00:05:27.080 literature,

NOTE Confidence: 0.8210369

00:05:28.555 --> 00:05:30.095 certainly with respect to

NOTE Confidence: 0.9902034

00:05:30.395 --> 00:05:31.615 longitudinal imaging.

NOTE Confidence: 0.9574794

00:05:33.115 --> 00:05:35.035 So anyway yeah. Just because

NOTE Confidence: 0.9574794

00:05:35.035 --> 00:05:36.395 we're we're, you know, we're

NOTE Confidence: 0.9574794

00:05:36.395 --> 00:05:38.495 focused on this cannabis question,

NOTE Confidence: 0.98306066

00:05:38.955 --> 00:05:40.315 it doesn't mean we are,

NOTE Confidence: 0.98306066

00:05:40.714 --> 00:05:41.695 you know, condoning

NOTE Confidence: 0.99911004

00:05:43.750 --> 00:05:45.050 other forms of

NOTE Confidence: 0.8818834

00:05:45.510 --> 00:05:47.130 adolescent substance use.

NOTE Confidence: 0.51520526

00:05:49.510 --> 00:05:50.010 And

NOTE Confidence: 0.97182447

00:05:50.470 --> 00:05:51.589 I've already touched on this

NOTE Confidence: 0.97182447

00:05:51.589 --> 00:05:52.630 point. You know, we're we're

NOTE Confidence: 0.97182447

00:05:52.630 --> 00:05:54.250 working with inherently observational

NOTE Confidence: 0.9969667

00:05:54.550 --> 00:05:56.470 data. It's clearly not ethical

NOTE Confidence: 0.9969667

00:05:56.470 --> 00:05:57.350 to do some sort of

NOTE Confidence: 0.9969667

00:05:57.350 --> 00:05:57.850 randomized

NOTE Confidence: 0.86343443

00:05:58.555 --> 00:05:59.055 study,

NOTE Confidence: 0.96570057

00:05:59.635 --> 00:06:01.214 in in in

NOTE Confidence: 0.87292725

00:06:01.914 --> 00:06:02.414 humans.

NOTE Confidence: 0.600814

00:06:02.875 --> 00:06:03.375 So

NOTE Confidence: 0.9840613

00:06:04.315 --> 00:06:05.275 that being said, you know,

NOTE Confidence: 0.9840613

00:06:05.275 --> 00:06:06.714 we we are in the

NOTE Confidence: 0.9840613

00:06:06.714 --> 00:06:07.775 process of

NOTE Confidence: 0.9632863

00:06:08.154 --> 00:06:10.235 of leveraging causal inference methods

NOTE Confidence: 0.9632863

00:06:10.235 --> 00:06:11.354 to to perhaps get a

NOTE Confidence: 0.9632863

00:06:11.354 --> 00:06:12.335 little bit closer

NOTE Confidence: 0.93940854

00:06:13.900 --> 00:06:15.279 to that causal question.

NOTE Confidence: 0.9919521

00:06:16.060 --> 00:06:17.180 But we are,

NOTE Confidence: 0.9802983

00:06:17.580 --> 00:06:19.680 you know, very aware of

NOTE Confidence: 0.9802983

00:06:19.740 --> 00:06:21.680 just the limitations around observational

NOTE Confidence: 0.9802983

00:06:21.900 --> 00:06:22.400 data.

NOTE Confidence: 0.98534715

00:06:22.860 --> 00:06:24.140 And then also, you know,

NOTE Confidence: 0.98534715

00:06:24.140 --> 00:06:25.900 we have no political agenda

NOTE Confidence: 0.98534715

00:06:25.900 --> 00:06:26.400 here.

NOTE Confidence: 0.89245975

00:06:27.595 --> 00:06:28.794 Really, I saw I'm a

NOTE Confidence: 0.89245975

00:06:28.794 --> 00:06:29.775 clinical psychologist,

NOTE Confidence: 0.948153

00:06:30.635 --> 00:06:31.755 and I do a lot

NOTE Confidence: 0.948153

00:06:31.755 --> 00:06:33.275 with respect to mood and

NOTE Confidence: 0.948153

00:06:33.275 --> 00:06:34.335 anxiety symptomatology,

NOTE Confidence: 0.94431436

00:06:35.835 --> 00:06:38.014 and in Vermont, cannabis use,

NOTE Confidence: 0.85545045

00:06:38.955 --> 00:06:39.855 comes up frequently,

NOTE Confidence: 0.9852742

00:06:40.315 --> 00:06:41.055 with clients.

NOTE Confidence: 0.97685766

00:06:41.870 --> 00:06:43.070 And so the idea here

NOTE Confidence: 0.97685766

00:06:43.070 --> 00:06:44.750 is really just to provide

NOTE Confidence: 0.97685766

00:06:44.750 --> 00:06:47.150 individuals with with data. Right?

NOTE Confidence: 0.97685766

00:06:47.389 --> 00:06:48.750 So that they can make

NOTE Confidence: 0.97685766

00:06:48.750 --> 00:06:50.529 their own informed decisions

NOTE Confidence: 0.96595

00:06:50.910 --> 00:06:52.110 and to kind of empower

NOTE Confidence: 0.96595

00:06:52.110 --> 00:06:52.610 them,

NOTE Confidence: 0.98111343

00:06:53.974 --> 00:06:55.735 to to make, you know,

NOTE Confidence: 0.98111343

00:06:55.735 --> 00:06:57.414 the best health related decisions

NOTE Confidence: 0.98111343

00:06:57.414 --> 00:06:58.074 they can.

NOTE Confidence: 0.8889953

00:06:59.014 --> 00:07:00.154 So anyway,

NOTE Confidence: 0.9613051

00:07:01.414 --> 00:07:03.034 I I always feel compelled

NOTE Confidence: 0.9613051

00:07:03.095 --> 00:07:03.574 to kind of,

NOTE Confidence: 0.92560154

00:07:04.294 --> 00:07:05.574 put that put that out

NOTE Confidence: 0.92560154

00:07:05.574 --> 00:07:06.074 there

NOTE Confidence: 0.9869574

00:07:07.450 --> 00:07:08.890 as an additional kind of

NOTE Confidence: 0.9869574

00:07:08.890 --> 00:07:09.390 disclaimer.

NOTE Confidence: 0.96575844

00:07:11.930 --> 00:07:12.430 So

NOTE Confidence: 0.95833844

00:07:13.210 --> 00:07:14.490 back to our outline here.

NOTE Confidence: 0.95833844

00:07:14.490 --> 00:07:16.430 So just a very quick

NOTE Confidence: 0.95833844

00:07:16.490 --> 00:07:18.830 look at at, kind of

NOTE Confidence: 0.963875

00:07:19.290 --> 00:07:20.490 what has happened with respect

NOTE Confidence: 0.963875

00:07:20.490 --> 00:07:22.410 to the cannabis landscape in

NOTE Confidence: 0.963875

00:07:22.410 --> 00:07:23.265 the last couple of decades.

NOTE Confidence: 0.963875

00:07:23.265 --> 00:07:24.465 I'm sure we're all very

NOTE Confidence: 0.963875

00:07:24.465 --> 00:07:24.965 aware

NOTE Confidence: 0.99814254

00:07:25.505 --> 00:07:26.485 of these factors.

NOTE Confidence: 0.98506457

00:07:28.145 --> 00:07:29.905 So this is a map

NOTE Confidence: 0.98506457

00:07:29.905 --> 00:07:31.045 now of,

NOTE Confidence: 0.8554468

00:07:31.585 --> 00:07:32.085 where,

NOTE Confidence: 0.9986031

00:07:33.185 --> 00:07:34.965 recreational cannabis use

NOTE Confidence: 0.99820846

00:07:35.970 --> 00:07:37.190 is now legal.

NOTE Confidence: 0.9335829

00:07:37.970 --> 00:07:38.450 So,

NOTE Confidence: 0.96163124

00:07:38.770 --> 00:07:39.890 right now, I believe as

NOTE Confidence: 0.96163124

00:07:39.890 --> 00:07:41.170 of twenty twenty five, there

NOTE Confidence: 0.96163124

00:07:41.170 --> 00:07:42.690 are twenty four states, so

NOTE Confidence: 0.96163124

00:07:42.690 --> 00:07:43.590 almost half,

NOTE Confidence: 0.9925672

00:07:43.970 --> 00:07:44.710 the US

NOTE Confidence: 0.68732035

00:07:45.170 --> 00:07:46.150 where recreational

NOTE Confidence: 0.99723035

00:07:46.610 --> 00:07:47.910 cannabis is legal.

NOTE Confidence: 0.9751362

00:07:50.585 --> 00:07:52.025 And this slide here just

NOTE Confidence: 0.9751362

00:07:52.025 --> 00:07:53.465 gives you a feel for

NOTE Confidence: 0.9751362

00:07:53.465 --> 00:07:55.145 the pace at which this

NOTE Confidence: 0.9751362

00:07:55.145 --> 00:07:56.985 has happened over the last

NOTE Confidence: 0.9751362

00:07:56.985 --> 00:07:58.445 twelve, thirteen years.

NOTE Confidence: 0.9721507

00:07:59.465 --> 00:08:01.325 So, you know, very quickly.

NOTE Confidence: 0.982358

00:08:02.130 --> 00:08:02.570 And,

NOTE Confidence: 0.9743253

00:08:03.010 --> 00:08:04.290 so here we see past

NOTE Confidence: 0.9743253

00:08:04.290 --> 00:08:05.110 year use,

NOTE Confidence: 0.8530649

00:08:05.570 --> 00:08:06.950 for number of substances.

NOTE Confidence: 0.9065223

00:08:08.450 --> 00:08:09.830 And you can see,

NOTE Confidence: 0.9997048

00:08:11.090 --> 00:08:11.590 that

NOTE Confidence: 0.8262477

00:08:12.530 --> 00:08:13.030 really,

NOTE Confidence: 0.9002311

00:08:14.130 --> 00:08:15.330 relative to,

NOTE Confidence: 0.985141

00:08:16.255 --> 00:08:18.255 other substances, there has been

NOTE Confidence: 0.985141

00:08:18.255 --> 00:08:20.115 this kind of steady uptick

NOTE Confidence: 0.985141

00:08:20.414 --> 00:08:20.914 in

NOTE Confidence: 0.83727854

00:08:21.215 --> 00:08:22.275 past year use,

NOTE Confidence: 0.9974673

00:08:22.655 --> 00:08:23.715 in individuals

NOTE Confidence: 0.9239795

00:08:24.415 --> 00:08:25.795 age twelve and older.

NOTE Confidence: 0.93393886

00:08:27.775 --> 00:08:29.469 This is just a more

NOTE Confidence: 0.93393886

00:08:29.469 --> 00:08:31.710 granular breakdown of cannabis use

NOTE Confidence: 0.93393886

00:08:31.710 --> 00:08:33.390 by age group. And really

NOTE Confidence: 0.93393886

00:08:33.390 --> 00:08:34.750 just, you know, with the

NOTE Confidence: 0.93393886

00:08:34.750 --> 00:08:35.250 exception

NOTE Confidence: 0.8885869

00:08:35.630 --> 00:08:36.110 of,

NOTE Confidence: 0.9728277

00:08:36.589 --> 00:08:38.269 the twelve to seventeen group

NOTE Confidence: 0.9728277

00:08:38.269 --> 00:08:39.410 here shown in green,

NOTE Confidence: 0.9874598

00:08:40.415 --> 00:08:42.434 there really has been significant

NOTE Confidence: 0.9163272

00:08:42.735 --> 00:08:44.735 increases in cannabis use in

NOTE Confidence: 0.9163272

00:08:44.735 --> 00:08:45.955 the last couple decades,

NOTE Confidence: 0.9896591

00:08:46.975 --> 00:08:49.535 you know, very significantly for

NOTE Confidence: 0.9896591

00:08:49.535 --> 00:08:51.075 for, young adults.

NOTE Confidence: 0.97973365

00:08:53.339 --> 00:08:54.079 And then

NOTE Confidence: 0.8143692

00:08:54.380 --> 00:08:54.880 also,

NOTE Confidence: 0.98561573

00:08:56.779 --> 00:08:58.160 coupled with these factors,

NOTE Confidence: 0.8902601

00:08:59.019 --> 00:09:01.019 these these changes in in

NOTE Confidence: 0.8902601

00:09:01.019 --> 00:09:02.319 perception of risk.

NOTE Confidence: 0.9699722

00:09:02.620 --> 00:09:04.300 So currently, over fifty percent

NOTE Confidence: 0.9699722

00:09:04.300 --> 00:09:04.959 of individuals

NOTE Confidence: 0.99831295

00:09:05.339 --> 00:09:05.839 believe

NOTE Confidence: 0.9957204

00:09:06.300 --> 00:09:08.059 using cannabis one to two

NOTE Confidence: 0.9957204

00:09:08.059 --> 00:09:08.959 times a week

NOTE Confidence: 0.9952083

00:09:09.395 --> 00:09:10.835 poses little to no health

NOTE Confidence: 0.9952083

00:09:10.835 --> 00:09:11.335 risk.

NOTE Confidence: 0.98131573

00:09:11.795 --> 00:09:12.915 And you can see, again,

NOTE Confidence: 0.98131573

00:09:12.915 --> 00:09:15.255 relative to other substances here,

NOTE Confidence: 0.9982189

00:09:16.115 --> 00:09:17.395 there has been a market

NOTE Confidence: 0.9982189

00:09:17.395 --> 00:09:19.015 shift with respect to cannabis

NOTE Confidence: 0.80807835

00:09:20.434 --> 00:09:22.355 in in the last decade

NOTE Confidence: 0.80807835

00:09:22.355 --> 00:09:23.015 or so.

NOTE Confidence: 0.95425874

00:09:24.770 --> 00:09:26.290 And then another slide, I'm

NOTE Confidence: 0.95425874

00:09:26.290 --> 00:09:27.890 sure everybody here is is

NOTE Confidence: 0.95425874

00:09:27.890 --> 00:09:29.350 all too familiar with,

NOTE Confidence: 0.9614876

00:09:29.730 --> 00:09:31.910 but just the increased THC

NOTE Confidence: 0.9614876

00:09:32.050 --> 00:09:32.550 concentration,

NOTE Confidence: 0.73777413

00:09:33.650 --> 00:09:35.030 in in seed cannabis,

NOTE Confidence: 0.9997894

00:09:36.050 --> 00:09:37.750 over the last several decades

NOTE Confidence: 0.99736226

00:09:38.625 --> 00:09:40.965 and really strong evidence indicating

NOTE Confidence: 0.9920794

00:09:41.345 --> 00:09:44.085 that high potency cannabis, particularly

NOTE Confidence: 0.9920794

00:09:44.225 --> 00:09:44.965 when used

NOTE Confidence: 0.9916016

00:09:45.665 --> 00:09:47.285 daily or near daily,

NOTE Confidence: 0.8728023

00:09:48.705 --> 00:09:51.025 presents another whole magnitude of

NOTE Confidence: 0.8728023

00:09:51.025 --> 00:09:51.480 risk.

NOTE Confidence: 0.7722622

00:09:52.440 --> 00:09:54.220 In a recent Lancet Psychiatry

NOTE Confidence: 0.91957885

00:09:55.880 --> 00:09:57.800 paper, high potency cannabis in

NOTE Confidence: 0.91957885

00:09:57.800 --> 00:09:58.300 particular,

NOTE Confidence: 0.9591841

00:09:59.160 --> 00:10:00.519 when used on a daily

NOTE Confidence: 0.9591841

00:10:00.519 --> 00:10:01.660 basis was

NOTE Confidence: 0.88268334

00:10:02.279 --> 00:10:03.399 related to a nine fold

NOTE Confidence: 0.88268334

00:10:03.399 --> 00:10:03.899 increase

NOTE Confidence: 0.85088354

00:10:04.465 --> 00:10:05.845 in psychotic disorders.

NOTE Confidence: 0.98885536

00:10:06.225 --> 00:10:07.425 And someone worked this out

NOTE Confidence: 0.98885536

00:10:07.425 --> 00:10:08.385 to be, you know, roughly

NOTE Confidence: 0.98885536

00:10:08.385 --> 00:10:09.045 the equivalent,

NOTE Confidence: 0.9598365

00:10:10.465 --> 00:10:11.585 to the risk of lung

NOTE Confidence: 0.9598365

00:10:11.585 --> 00:10:14.465 cancer, in individuals smoking thirty

NOTE Confidence: 0.9598365

00:10:14.465 --> 00:10:15.825 cigarettes a day. So that

NOTE Confidence: 0.9598365

00:10:15.825 --> 00:10:17.125 helps you just kind of,

NOTE Confidence: 0.9097266

00:10:18.225 --> 00:10:19.684 put that in context.

NOTE Confidence: 0.8844386

00:10:20.179 --> 00:10:21.540 And and another kind of

NOTE Confidence: 0.8844386

00:10:21.540 --> 00:10:22.040 sobering,

NOTE Confidence: 0.87846243

00:10:22.740 --> 00:10:24.660 detail here that that that

NOTE Confidence: 0.87846243

00:10:24.660 --> 00:10:26.100 study that I just mentioned,

NOTE Confidence: 0.87846243

00:10:26.100 --> 00:10:28.200 the, De Forte et al,

NOTE Confidence: 0.99485505

00:10:29.620 --> 00:10:31.459 high potency was defined as

NOTE Confidence: 0.99485505

00:10:31.459 --> 00:10:32.660 as, you know,

NOTE Confidence: 0.9878519

00:10:33.059 --> 00:10:34.980 THC content of of greater

NOTE Confidence: 0.9878519

00:10:34.980 --> 00:10:35.835 than ten percent.

NOTE Confidence: 0.98249793

00:10:36.715 --> 00:10:37.455 And I think,

NOTE Confidence: 0.9777374

00:10:38.075 --> 00:10:38.975 certainly within,

NOTE Confidence: 0.98698014

00:10:39.434 --> 00:10:41.275 the Burlington area, any of

NOTE Confidence: 0.98698014

00:10:41.275 --> 00:10:42.875 the local dispensaries, I I

NOTE Confidence: 0.98698014

00:10:42.875 --> 00:10:44.475 think you'd probably be hard

NOTE Confidence: 0.98698014

00:10:44.475 --> 00:10:44.975 pressed

NOTE Confidence: 0.99940455

00:10:45.515 --> 00:10:46.175 to find

NOTE Confidence: 0.9906286

00:10:48.750 --> 00:10:49.650 any cannabis,

NOTE Confidence: 0.99664

00:10:50.750 --> 00:10:53.170 you know, with THC content

NOTE Confidence: 0.99664

00:10:53.230 --> 00:10:55.330 as low as, you know,

NOTE Confidence: 0.98445934

00:10:55.710 --> 00:10:57.330 ten percent low teens.

NOTE Confidence: 0.9984699

00:10:58.670 --> 00:10:59.170 So

NOTE Confidence: 0.9997598

00:11:00.365 --> 00:11:02.625 even that has evolved significantly

NOTE Confidence: 0.9997598

00:11:02.845 --> 00:11:04.144 in the last several years.

NOTE Confidence: 0.99893576

00:11:06.764 --> 00:11:07.264 So

NOTE Confidence: 0.9670884

00:11:07.644 --> 00:11:09.324 all this to say, you

NOTE Confidence: 0.9670884

00:11:09.324 --> 00:11:11.004 know, again, these are really

NOTE Confidence: 0.9670884

00:11:11.004 --> 00:11:12.204 kind of, I think, some

NOTE Confidence: 0.9670884

00:11:12.204 --> 00:11:13.884 of the motivating factors that

NOTE Confidence: 0.9670884

00:11:13.884 --> 00:11:15.550 went into some of our

NOTE Confidence: 0.9670884

00:11:15.550 --> 00:11:16.690 initial work here.

NOTE Confidence: 0.9411542

00:11:17.230 --> 00:11:18.110 So we have kind of

NOTE Confidence: 0.9411542

00:11:18.110 --> 00:11:20.670 this these changes in in

NOTE Confidence: 0.9411542

00:11:20.670 --> 00:11:21.570 risk perception.

NOTE Confidence: 0.9756223

00:11:22.029 --> 00:11:22.990 We have this kind of

NOTE Confidence: 0.9756223

00:11:22.990 --> 00:11:25.089 rapidly changing legal status,

NOTE Confidence: 0.8384919

00:11:25.870 --> 00:11:26.925 in many states,

NOTE Confidence: 0.98032045

00:11:27.485 --> 00:11:28.705 as as far as cannabis

NOTE Confidence: 0.98032045

00:11:28.765 --> 00:11:29.584 use is concerned.

NOTE Confidence: 0.9872044

00:11:30.125 --> 00:11:31.644 We see what looks like

NOTE Confidence: 0.9872044

00:11:31.644 --> 00:11:33.404 this kind of widespread increase

NOTE Confidence: 0.9872044

00:11:33.404 --> 00:11:35.245 in cannabis use across most

NOTE Confidence: 0.9872044

00:11:35.245 --> 00:11:35.985 age groups.

NOTE Confidence: 0.9799253

00:11:36.524 --> 00:11:38.225 And then lastly, this,

NOTE Confidence: 0.9947076

00:11:38.845 --> 00:11:39.825 this kind of

NOTE Confidence: 0.959706

00:11:40.380 --> 00:11:42.940 increase in THC concentration in

NOTE Confidence: 0.959706

00:11:42.940 --> 00:11:44.880 cannabis and in cannabis products.

NOTE Confidence: 0.9848781

00:11:47.420 --> 00:11:48.540 So that was a little

NOTE Confidence: 0.9848781

00:11:48.540 --> 00:11:49.420 bit of a whirlwind there,

NOTE Confidence: 0.9848781

00:11:49.420 --> 00:11:50.220 but that was, you know,

NOTE Confidence: 0.9848781

00:11:50.220 --> 00:11:51.180 again, just kind of the

NOTE Confidence: 0.9848781

00:11:51.180 --> 00:11:52.720 the the motivating context,

NOTE Confidence: 0.9975932

00:11:53.180 --> 00:11:54.220 for for some of this

NOTE Confidence: 0.9975932

00:11:54.220 --> 00:11:55.440 initial work here.

NOTE Confidence: 0.9574425

00:11:55.740 --> 00:11:56.835 So now I'll dive right

NOTE Confidence: 0.9574425

00:11:56.835 --> 00:11:57.335 into,

NOTE Confidence: 0.9836788

00:11:59.075 --> 00:12:00.755 our imaging work. I always

NOTE Confidence: 0.9836788

00:12:00.755 --> 00:12:01.635 have this slide in here.

NOTE Confidence: 0.9836788

00:12:01.635 --> 00:12:02.275 So so,

NOTE Confidence: 0.96735287

00:12:02.915 --> 00:12:05.015 work coming out of, doctor

NOTE Confidence: 0.96735287

00:12:05.155 --> 00:12:06.775 Yasmin Hurd's lab really,

NOTE Confidence: 0.9272803

00:12:07.315 --> 00:12:09.655 I think was the primary

NOTE Confidence: 0.9272803

00:12:09.875 --> 00:12:11.820 scientific motivation for us.

NOTE Confidence: 0.9483439

00:12:13.580 --> 00:12:15.020 Our lab had looked at,

NOTE Confidence: 0.9326407

00:12:15.340 --> 00:12:16.960 the Miller et al paper,

NOTE Confidence: 0.99871355

00:12:18.059 --> 00:12:20.160 and there was very solid

NOTE Confidence: 0.99871355

00:12:20.300 --> 00:12:20.800 experimental

NOTE Confidence: 0.99993956

00:12:21.100 --> 00:12:21.600 evidence

NOTE Confidence: 0.9996666

00:12:22.140 --> 00:12:23.360 for adolescent

NOTE Confidence: 0.99841297

00:12:23.740 --> 00:12:24.880 THC exposure

NOTE Confidence: 0.9993408

00:12:25.425 --> 00:12:27.765 resulting in accelerated dendritic

NOTE Confidence: 0.9392002

00:12:28.145 --> 00:12:28.645 pruning,

NOTE Confidence: 0.96774465

00:12:29.425 --> 00:12:32.085 primarily in pyramidal prefrontal neurons.

NOTE Confidence: 0.98375905

00:12:32.945 --> 00:12:34.225 And there are some very

NOTE Confidence: 0.98375905

00:12:34.225 --> 00:12:35.365 compelling graphics,

NOTE Confidence: 0.99240327

00:12:35.745 --> 00:12:36.785 where, you know, you look

NOTE Confidence: 0.99240327

00:12:36.785 --> 00:12:37.925 at the exposed

NOTE Confidence: 0.99951565

00:12:38.710 --> 00:12:39.210 animals

NOTE Confidence: 0.98967457

00:12:39.590 --> 00:12:40.890 versus the controls,

NOTE Confidence: 0.97184

00:12:41.670 --> 00:12:43.190 especially a few weeks out,

NOTE Confidence: 0.97184

00:12:43.190 --> 00:12:44.970 and you can visually see,

NOTE Confidence: 0.9610884

00:12:45.670 --> 00:12:46.490 just how,

NOTE Confidence: 0.98003423

00:12:47.429 --> 00:12:49.770 the dendritic arbors are sparser

NOTE Confidence: 0.9975927

00:12:50.309 --> 00:12:52.250 in in the exposed animals

NOTE Confidence: 0.9975927

00:12:52.309 --> 00:12:53.690 relative to the controls.

NOTE Confidence: 0.92915666

00:12:55.095 --> 00:12:56.795 So all of this suggesting

NOTE Confidence: 0.92915666

00:12:56.855 --> 00:12:58.955 that THC exposure during adolescence,

NOTE Confidence: 0.9932588

00:12:59.735 --> 00:13:01.575 resulting in accelerated pruning and

NOTE Confidence: 0.9932588

00:13:01.575 --> 00:13:03.895 possibly removing connections that may

NOTE Confidence: 0.9932588

00:13:03.895 --> 00:13:05.675 otherwise have persisted into

NOTE Confidence: 0.84726024

00:13:05.975 --> 00:13:06.475 adulthood.

NOTE Confidence: 0.99590856

00:13:08.210 --> 00:13:09.809 And this certainly seems to

NOTE Confidence: 0.99590856

00:13:09.809 --> 00:13:10.790 fit with,

NOTE Confidence: 0.9664937

00:13:11.410 --> 00:13:13.010 just what we think we

NOTE Confidence: 0.9664937

00:13:13.010 --> 00:13:14.550 know about the endocannabinoid

NOTE Confidence: 0.8915529

00:13:15.090 --> 00:13:15.590 system,

NOTE Confidence: 0.92677146

00:13:16.130 --> 00:13:18.230 and its involvement in adolescence

NOTE Confidence: 0.9011393

00:13:18.610 --> 00:13:20.950 and early adulthood in synaptic

NOTE Confidence: 0.9011393

00:13:21.170 --> 00:13:21.670 pruning.

NOTE Confidence: 0.9629822

00:13:23.625 --> 00:13:24.525 And so

NOTE Confidence: 0.9874708

00:13:25.225 --> 00:13:26.505 at the time, just a

NOTE Confidence: 0.9874708

00:13:26.505 --> 00:13:27.405 few years ago,

NOTE Confidence: 0.99236333

00:13:27.785 --> 00:13:29.625 you know, after looking through

NOTE Confidence: 0.99236333

00:13:29.625 --> 00:13:30.365 this paper

NOTE Confidence: 0.81641746

00:13:30.905 --> 00:13:32.285 and also realizing

NOTE Confidence: 0.98412716

00:13:32.585 --> 00:13:33.885 that, just

NOTE Confidence: 0.99887764

00:13:34.345 --> 00:13:35.705 looking at what was out

NOTE Confidence: 0.99887764

00:13:35.705 --> 00:13:36.845 there in the literature,

NOTE Confidence: 0.87929827

00:13:37.370 --> 00:13:38.269 there seem to be

NOTE Confidence: 0.97033423

00:13:38.570 --> 00:13:40.269 very, very few,

NOTE Confidence: 0.99839777

00:13:40.809 --> 00:13:41.309 longitudinal

NOTE Confidence: 0.9368162

00:13:41.769 --> 00:13:43.769 imaging studies looking at cannabis

NOTE Confidence: 0.9368162

00:13:43.769 --> 00:13:44.269 use,

NOTE Confidence: 0.72610015

00:13:45.290 --> 00:13:45.769 and,

NOTE Confidence: 0.9000411

00:13:46.170 --> 00:13:47.630 longitudinal brain change,

NOTE Confidence: 0.99794215

00:13:49.620 --> 00:13:50.120 and

NOTE Confidence: 0.8763344

00:13:51.285 --> 00:13:51.785 especially,

NOTE Confidence: 0.9711135

00:13:52.725 --> 00:13:54.085 studies where, you know, there

NOTE Confidence: 0.9711135

00:13:54.085 --> 00:13:55.065 was a sizable

NOTE Confidence: 0.86167

00:13:55.684 --> 00:13:56.184 sample.

NOTE Confidence: 0.9806598

00:13:56.964 --> 00:13:58.265 What was out there,

NOTE Confidence: 0.9620383

00:13:59.045 --> 00:14:00.404 the the few studies that

NOTE Confidence: 0.9620383

00:14:00.404 --> 00:14:01.385 were out there,

NOTE Confidence: 0.94886506

00:14:01.845 --> 00:14:03.464 they were relatively small

NOTE Confidence: 0.97507656

00:14:03.790 --> 00:14:04.610 samples, particularly

NOTE Confidence: 0.97321373

00:14:04.910 --> 00:14:06.030 in kind of the Merrick

NOTE Confidence: 0.97321373

00:14:06.030 --> 00:14:06.770 et al

NOTE Confidence: 0.5602327

00:14:08.190 --> 00:14:08.690 era,

NOTE Confidence: 0.9512373

00:14:09.870 --> 00:14:11.490 where, you know, there is

NOTE Confidence: 0.9917814

00:14:11.910 --> 00:14:12.410 a

NOTE Confidence: 0.9454986

00:14:12.830 --> 00:14:14.270 a, certainly a premium for

NOTE Confidence: 0.9454986

00:14:14.270 --> 00:14:15.730 for larger samples.

NOTE Confidence: 0.9625539

00:14:16.774 --> 00:14:17.894 And then this other piece

NOTE Confidence: 0.9625539

00:14:17.894 --> 00:14:19.815 too that, so some of

NOTE Confidence: 0.9625539

00:14:19.815 --> 00:14:20.774 the work I had been

NOTE Confidence: 0.9625539

00:14:20.774 --> 00:14:22.535 involved in, even going back

NOTE Confidence: 0.9625539

00:14:22.535 --> 00:14:24.454 to, my time in graduate

NOTE Confidence: 0.9625539

00:14:24.454 --> 00:14:24.954 school,

NOTE Confidence: 0.9986134

00:14:25.654 --> 00:14:26.695 it was really looking at

NOTE Confidence: 0.9986134

00:14:26.695 --> 00:14:27.195 longitudinal

NOTE Confidence: 0.6992568

00:14:27.654 --> 00:14:28.154 cortical,

NOTE Confidence: 0.69608784

00:14:29.255 --> 00:14:29.755 change,

NOTE Confidence: 0.9755575

00:14:30.870 --> 00:14:32.550 looking at trajectories of age

NOTE Confidence: 0.9755575

00:14:32.550 --> 00:14:33.030 related,

NOTE Confidence: 0.8697929

00:14:34.310 --> 00:14:35.610 cerebral cortical development.

NOTE Confidence: 0.98853993

00:14:36.630 --> 00:14:38.710 And this idea that part

NOTE Confidence: 0.98853993

00:14:38.710 --> 00:14:39.850 of what drives,

NOTE Confidence: 0.9957522

00:14:40.710 --> 00:14:41.850 MRI assessed

NOTE Confidence: 0.9984808

00:14:42.735 --> 00:14:44.595 age related cortical thinning

NOTE Confidence: 0.89855915

00:14:46.895 --> 00:14:48.995 is dendritic and synaptic pruning.

NOTE Confidence: 0.89855915

00:14:49.214 --> 00:14:49.714 So,

NOTE Confidence: 0.99976516

00:14:50.255 --> 00:14:51.555 this idea that

NOTE Confidence: 0.9976536

00:14:52.015 --> 00:14:54.435 this particular method might be

NOTE Confidence: 0.9943943

00:14:55.280 --> 00:14:56.640 might be sensitive to some

NOTE Confidence: 0.9943943

00:14:56.640 --> 00:14:57.780 of the the neurobiological

NOTE Confidence: 0.99991643

00:14:58.400 --> 00:14:58.900 changes

NOTE Confidence: 0.95993024

00:15:00.320 --> 00:15:01.520 that, you know, that that

NOTE Confidence: 0.95993024

00:15:01.520 --> 00:15:03.360 may be associated with cannabis

NOTE Confidence: 0.95993024

00:15:03.360 --> 00:15:03.860 use,

NOTE Confidence: 0.9886695

00:15:04.240 --> 00:15:06.260 in in humans during adolescence.

NOTE Confidence: 0.57599634

00:15:08.000 --> 00:15:08.500 So

NOTE Confidence: 0.99941987

00:15:09.515 --> 00:15:10.895 this might be

NOTE Confidence: 0.9033344

00:15:11.515 --> 00:15:13.195 a review for for most

NOTE Confidence: 0.9033344

00:15:13.195 --> 00:15:14.475 of you, but just just

NOTE Confidence: 0.9033344

00:15:14.475 --> 00:15:14.975 quickly,

NOTE Confidence: 0.96005136

00:15:15.835 --> 00:15:16.555 so we'll be talking a

NOTE Confidence: 0.96005136

00:15:16.555 --> 00:15:17.295 lot about,

NOTE Confidence: 0.9949924

00:15:17.995 --> 00:15:19.615 the measure of cortical thickness.

NOTE Confidence: 0.96480703

00:15:20.555 --> 00:15:22.075 So there are surface based

NOTE Confidence: 0.96480703

00:15:22.075 --> 00:15:23.295 imaging pipelines,

NOTE Confidence: 0.92141324

00:15:23.950 --> 00:15:25.790 that we, run t one

NOTE Confidence: 0.92141324

00:15:25.790 --> 00:15:26.930 weighted data through.

NOTE Confidence: 0.9681766

00:15:27.470 --> 00:15:28.830 When we're talking about cortical

NOTE Confidence: 0.9681766

00:15:28.830 --> 00:15:30.269 thickness, we're talking about the

NOTE Confidence: 0.9681766

00:15:30.269 --> 00:15:32.350 distance between the, essentially, the

NOTE Confidence: 0.9681766

00:15:32.350 --> 00:15:34.370 white matter surface and what's

NOTE Confidence: 0.9681766

00:15:34.510 --> 00:15:35.790 commonly referred to as the

NOTE Confidence: 0.9681766

00:15:35.790 --> 00:15:36.769 pial surface,

NOTE Confidence: 0.93466675

00:15:37.885 --> 00:15:39.165 are just kind of, you

NOTE Confidence: 0.93466675

00:15:39.165 --> 00:15:39.905 know, the,

NOTE Confidence: 0.999232

00:15:40.605 --> 00:15:41.665 outer exterior

NOTE Confidence: 0.902579

00:15:42.445 --> 00:15:43.825 of the cortical ribbon.

NOTE Confidence: 0.7874633

00:15:45.005 --> 00:15:45.505 And,

NOTE Confidence: 0.93254584

00:15:47.005 --> 00:15:47.905 there is,

NOTE Confidence: 0.98618513

00:15:48.605 --> 00:15:50.845 compelling evidence that, you know,

NOTE Confidence: 0.98618513

00:15:50.845 --> 00:15:53.320 there there are significant age

NOTE Confidence: 0.98618513

00:15:53.320 --> 00:15:54.300 related changes,

NOTE Confidence: 0.9938118

00:15:54.680 --> 00:15:55.899 when we look at cortical

NOTE Confidence: 0.9938118

00:15:56.040 --> 00:15:57.339 thickness over time.

NOTE Confidence: 0.8867152

00:15:58.040 --> 00:15:58.779 And, again,

NOTE Confidence: 0.97087383

00:15:59.560 --> 00:16:01.320 one of the drivers behind

NOTE Confidence: 0.97087383

00:16:01.320 --> 00:16:03.480 this MRI assessed thinning is

NOTE Confidence: 0.97087383

00:16:03.480 --> 00:16:04.540 believed to be

NOTE Confidence: 0.95801735

00:16:05.115 --> 00:16:06.895 dendritic and synaptic pruning,

NOTE Confidence: 0.9583185

00:16:07.835 --> 00:16:08.655 but also,

NOTE Confidence: 0.9135177

00:16:09.595 --> 00:16:11.755 you know, myelination particularly of

NOTE Confidence: 0.9135177

00:16:11.755 --> 00:16:12.255 of

NOTE Confidence: 0.94639254

00:16:12.635 --> 00:16:13.695 lower cortical,

NOTE Confidence: 0.98746

00:16:14.155 --> 00:16:14.655 layers.

NOTE Confidence: 0.8738426

00:16:15.915 --> 00:16:17.215 And just to note too,

NOTE Confidence: 0.93300325

00:16:18.290 --> 00:16:19.330 it's maybe getting a little

NOTE Confidence: 0.93300325

00:16:19.330 --> 00:16:19.890 bit off,

NOTE Confidence: 0.9513278

00:16:20.529 --> 00:16:21.730 into the weeds here. But,

NOTE Confidence: 0.99904263

00:16:22.450 --> 00:16:23.670 you know, early on

NOTE Confidence: 0.8825162

00:16:24.130 --> 00:16:25.510 trajectories of cortical,

NOTE Confidence: 0.8646366

00:16:26.209 --> 00:16:26.709 thinning,

NOTE Confidence: 0.9374307

00:16:27.010 --> 00:16:29.170 across childhood and adolescence suggested

NOTE Confidence: 0.9374307

00:16:29.170 --> 00:16:31.110 kind of this inverted quadratic

NOTE Confidence: 0.95523524

00:16:32.255 --> 00:16:33.395 shape. Over the years,

NOTE Confidence: 0.97300977

00:16:34.415 --> 00:16:35.635 and with the advent

NOTE Confidence: 0.9854172

00:16:36.335 --> 00:16:38.435 of more rigorous QC techniques,

NOTE Confidence: 0.94458264

00:16:39.215 --> 00:16:40.355 and larger samples,

NOTE Confidence: 0.9720916

00:16:40.975 --> 00:16:42.255 it really looks like as

NOTE Confidence: 0.9720916

00:16:42.255 --> 00:16:43.075 of age

NOTE Confidence: 0.98471075

00:16:43.500 --> 00:16:44.620 five or so, there is

NOTE Confidence: 0.98471075

00:16:44.620 --> 00:16:45.120 this,

NOTE Confidence: 0.9861124

00:16:45.500 --> 00:16:46.880 kind of first order,

NOTE Confidence: 0.999259

00:16:47.740 --> 00:16:49.600 linear thinning that's taking place

NOTE Confidence: 0.999259

00:16:49.820 --> 00:16:50.880 throughout most

NOTE Confidence: 0.95987284

00:16:51.260 --> 00:16:52.720 of the the cortex.

NOTE Confidence: 0.9089495

00:16:55.815 --> 00:16:56.315 So,

NOTE Confidence: 0.9104355

00:16:57.815 --> 00:16:58.535 at about the time I

NOTE Confidence: 0.9104355

00:16:58.535 --> 00:17:00.455 was starting my my my

NOTE Confidence: 0.9104355

00:17:00.455 --> 00:17:01.115 k award,

NOTE Confidence: 0.92741174

00:17:02.215 --> 00:17:04.215 I had been working with

NOTE Confidence: 0.92741174

00:17:04.215 --> 00:17:05.355 the image and dataset.

NOTE Confidence: 0.9575076

00:17:06.455 --> 00:17:07.895 Hugh Garavan, who has just

NOTE Confidence: 0.9575076

00:17:07.895 --> 00:17:09.195 been, an incredible

NOTE Confidence: 0.9174165

00:17:10.119 --> 00:17:11.399 mentor and and part of

NOTE Confidence: 0.9174165

00:17:11.399 --> 00:17:13.000 the the mentorship team on

NOTE Confidence: 0.9174165

00:17:13.000 --> 00:17:13.740 my k,

NOTE Confidence: 0.8961739

00:17:15.399 --> 00:17:16.800 you know, he had a

NOTE Confidence: 0.8961739

00:17:16.800 --> 00:17:18.059 long standing interest

NOTE Confidence: 0.92671037

00:17:18.520 --> 00:17:20.119 in cannabis use and brain

NOTE Confidence: 0.92671037

00:17:20.119 --> 00:17:20.619 development.

NOTE Confidence: 0.9731056

00:17:22.039 --> 00:17:23.640 And so, again, because we

NOTE Confidence: 0.9731056

00:17:23.640 --> 00:17:24.140 had

NOTE Confidence: 0.9969283

00:17:25.465 --> 00:17:25.965 access

NOTE Confidence: 0.85631835

00:17:26.345 --> 00:17:27.565 to the imaging dataset,

NOTE Confidence: 0.9137452

00:17:28.505 --> 00:17:29.865 Hugh is one of the,

NOTE Confidence: 0.9541191

00:17:31.065 --> 00:17:31.945 or was one of the

NOTE Confidence: 0.9541191

00:17:31.945 --> 00:17:32.765 site PIs,

NOTE Confidence: 0.9669281

00:17:33.145 --> 00:17:34.365 on the imaging study.

NOTE Confidence: 0.9377311

00:17:35.305 --> 00:17:36.765 And this is a study

NOTE Confidence: 0.9377311

00:17:36.825 --> 00:17:38.105 of over two thousand two

NOTE Confidence: 0.9377311

00:17:38.105 --> 00:17:39.244 hundred youths.

NOTE Confidence: 0.99662113

00:17:39.780 --> 00:17:41.220 They were recruited at fourteen

NOTE Confidence: 0.99662113

00:17:41.220 --> 00:17:43.000 years of age through schools.

NOTE Confidence: 0.7050135

00:17:44.020 --> 00:17:44.520 There,

NOTE Confidence: 0.97104186

00:17:44.900 --> 00:17:46.500 there's a whole host of

NOTE Confidence: 0.97104186

00:17:46.500 --> 00:17:48.260 substance use and mental health

NOTE Confidence: 0.97104186

00:17:48.260 --> 00:17:50.100 measures, cognitive measures, as well

NOTE Confidence: 0.97104186

00:17:50.100 --> 00:17:50.840 as genetics,

NOTE Confidence: 0.92639214

00:17:51.859 --> 00:17:52.740 that, you know, that, that

NOTE Confidence: 0.92639214

00:17:52.740 --> 00:17:53.560 were collected.

NOTE Confidence: 0.9904784

00:17:54.725 --> 00:17:57.145 And then also MRI scans

NOTE Confidence: 0.9036243

00:17:58.165 --> 00:17:59.065 at fourteen,

NOTE Confidence: 0.9586679

00:17:59.685 --> 00:18:01.465 nineteen, and twenty two.

NOTE Confidence: 0.9111375

00:18:01.925 --> 00:18:03.945 So, just a very

NOTE Confidence: 0.87218696

00:18:04.325 --> 00:18:05.385 impressive dataset

NOTE Confidence: 0.8447018

00:18:06.405 --> 00:18:07.065 and actually

NOTE Confidence: 0.826809

00:18:07.605 --> 00:18:08.345 kind of

NOTE Confidence: 0.94718593

00:18:09.125 --> 00:18:09.625 perfect

NOTE Confidence: 0.9889774

00:18:10.039 --> 00:18:11.400 for this this,

NOTE Confidence: 0.9710711

00:18:11.799 --> 00:18:14.140 this cannabis use cortical development

NOTE Confidence: 0.9765407

00:18:14.760 --> 00:18:15.260 question.

NOTE Confidence: 0.9452773

00:18:15.880 --> 00:18:16.919 And I at the time,

NOTE Confidence: 0.9452773

00:18:16.919 --> 00:18:17.880 I had just kind of

NOTE Confidence: 0.9452773

00:18:17.880 --> 00:18:18.780 finished running

NOTE Confidence: 0.9031637

00:18:19.559 --> 00:18:20.600 all of the image and

NOTE Confidence: 0.9031637

00:18:20.600 --> 00:18:21.100 data,

NOTE Confidence: 0.99348474

00:18:22.280 --> 00:18:23.880 so the fourteen age fourteen

NOTE Confidence: 0.99348474

00:18:23.880 --> 00:18:25.260 and age nineteen data

NOTE Confidence: 0.95838773

00:18:25.715 --> 00:18:28.275 through Civette, which is, for

NOTE Confidence: 0.95838773

00:18:28.275 --> 00:18:29.315 those of you who haven't

NOTE Confidence: 0.95838773

00:18:29.315 --> 00:18:30.595 heard of Civette, it's it's

NOTE Confidence: 0.95838773

00:18:30.595 --> 00:18:31.095 it's,

NOTE Confidence: 0.9357733

00:18:31.395 --> 00:18:33.155 it's analogous to to free

NOTE Confidence: 0.9357733

00:18:33.155 --> 00:18:33.655 surfer.

NOTE Confidence: 0.95541984

00:18:34.355 --> 00:18:35.875 It was developed up at

NOTE Confidence: 0.95541984

00:18:35.875 --> 00:18:38.275 McGill by, Alan Evans and

NOTE Confidence: 0.95541984

00:18:38.275 --> 00:18:39.015 his colleagues.

NOTE Confidence: 0.9285618

00:18:40.115 --> 00:18:41.780 But I had run all

NOTE Confidence: 0.9285618

00:18:41.780 --> 00:18:43.540 the t one weighted data,

NOTE Confidence: 0.8608546

00:18:44.020 --> 00:18:45.160 through Sivette.

NOTE Confidence: 0.9601837

00:18:45.540 --> 00:18:47.059 And we'd already started to

NOTE Confidence: 0.9601837

00:18:47.059 --> 00:18:48.040 look at,

NOTE Confidence: 0.97816783

00:18:48.419 --> 00:18:49.799 age related change,

NOTE Confidence: 0.89399415

00:18:50.820 --> 00:18:51.799 in these data.

NOTE Confidence: 0.90557986

00:18:55.845 --> 00:18:57.545 And so to address the

NOTE Confidence: 0.99188644

00:18:58.325 --> 00:18:59.625 this cannabis question,

NOTE Confidence: 0.9653375

00:19:00.165 --> 00:19:00.665 we,

NOTE Confidence: 0.99862945

00:19:02.405 --> 00:19:04.265 we looked at individuals

NOTE Confidence: 0.96187735

00:19:04.965 --> 00:19:06.165 who, first of all, just

NOTE Confidence: 0.96187735

00:19:06.165 --> 00:19:06.665 had

NOTE Confidence: 0.71577185

00:19:07.020 --> 00:19:07.520 QC'd,

NOTE Confidence: 0.9521488

00:19:08.619 --> 00:19:09.680 structural data,

NOTE Confidence: 0.9338911

00:19:10.460 --> 00:19:12.320 at at baseline and follow-up.

NOTE Confidence: 0.9442126

00:19:13.900 --> 00:19:14.800 But then importantly,

NOTE Confidence: 0.9994836

00:19:15.340 --> 00:19:16.160 we limited

NOTE Confidence: 0.99927014

00:19:16.619 --> 00:19:18.000 participants to those

NOTE Confidence: 0.95004046

00:19:18.300 --> 00:19:18.800 who,

NOTE Confidence: 0.96137303

00:19:19.980 --> 00:19:21.580 who who had reported being

NOTE Confidence: 0.96137303

00:19:21.580 --> 00:19:22.484 cannabis naive,

NOTE Confidence: 0.9611923

00:19:23.525 --> 00:19:25.125 at study baseline. So, again,

NOTE Confidence: 0.9611923

00:19:25.125 --> 00:19:26.665 at fourteen years of age.

NOTE Confidence: 0.9760562

00:19:27.845 --> 00:19:29.045 And then, again, as long

NOTE Confidence: 0.9760562

00:19:29.045 --> 00:19:29.924 as they had,

NOTE Confidence: 0.9405573

00:19:30.885 --> 00:19:32.345 follow-up imaging data,

NOTE Confidence: 0.9729474

00:19:32.965 --> 00:19:34.085 they got included into the

NOTE Confidence: 0.9729474

00:19:34.085 --> 00:19:35.285 study. So, overall, we had

NOTE Confidence: 0.9729474

00:19:35.285 --> 00:19:36.825 almost eight hundred subjects,

NOTE Confidence: 0.9567341

00:19:37.990 --> 00:19:39.270 four hundred and fifty females,

NOTE Confidence: 0.9567341

00:19:39.270 --> 00:19:40.549 three hundred and forty nine

NOTE Confidence: 0.9567341

00:19:40.549 --> 00:19:41.049 males.

NOTE Confidence: 0.88427246

00:19:42.549 --> 00:19:43.750 Again, the data were run

NOTE Confidence: 0.88427246

00:19:44.309 --> 00:19:45.289 were run through Civette,

NOTE Confidence: 0.9262458

00:19:46.309 --> 00:19:47.850 and I used a,

NOTE Confidence: 0.9373074

00:19:49.270 --> 00:19:51.555 MATLAB toolbox developed by Keith

NOTE Confidence: 0.9373074

00:19:51.715 --> 00:19:52.215 Worsley,

NOTE Confidence: 0.67775255

00:19:52.755 --> 00:19:53.655 called Servstat

NOTE Confidence: 0.9545543

00:19:54.435 --> 00:19:55.175 to analyze,

NOTE Confidence: 0.972943

00:19:55.795 --> 00:19:56.455 the data.

NOTE Confidence: 0.970502

00:19:57.075 --> 00:19:58.595 And in particular, we we

NOTE Confidence: 0.970502

00:19:58.595 --> 00:19:59.655 ran vertex

NOTE Confidence: 0.9730395

00:19:59.955 --> 00:20:02.135 level linear mixed effects models.

NOTE Confidence: 0.9946342

00:20:03.475 --> 00:20:05.235 We for these analyses, we

NOTE Confidence: 0.9946342

00:20:05.235 --> 00:20:06.900 ran a whole host of

NOTE Confidence: 0.9946342

00:20:06.900 --> 00:20:07.400 sensitivity

NOTE Confidence: 0.9625977

00:20:07.940 --> 00:20:09.380 analyses. But kind of to

NOTE Confidence: 0.9625977

00:20:09.380 --> 00:20:10.680 start, we were controlling

NOTE Confidence: 0.89157367

00:20:10.980 --> 00:20:11.480 for,

NOTE Confidence: 0.99943733

00:20:12.100 --> 00:20:13.320 total brain volume,

NOTE Confidence: 0.990045

00:20:14.420 --> 00:20:15.320 sex at birth,

NOTE Confidence: 0.99652123

00:20:16.020 --> 00:20:16.520 handedness,

NOTE Confidence: 0.9953672

00:20:17.140 --> 00:20:18.359 the actual scanner,

NOTE Confidence: 0.9572802

00:20:19.140 --> 00:20:20.840 and also alcohol consumption.

NOTE Confidence: 0.9445077

00:20:21.220 --> 00:20:23.044 We ended up, you know,

NOTE Confidence: 0.9445077

00:20:23.105 --> 00:20:23.845 in in subsequent,

NOTE Confidence: 0.94248843

00:20:24.544 --> 00:20:26.705 analyses controlling for tobacco use

NOTE Confidence: 0.94248843

00:20:26.705 --> 00:20:27.845 and some other things

NOTE Confidence: 0.83229876

00:20:28.465 --> 00:20:30.404 and findings largely held.

NOTE Confidence: 0.97017974

00:20:31.264 --> 00:20:32.225 But, again, that was kind

NOTE Confidence: 0.97017974

00:20:32.225 --> 00:20:33.845 of the, those were the

NOTE Confidence: 0.97017974

00:20:34.065 --> 00:20:34.565 initial

NOTE Confidence: 0.9802762

00:20:34.865 --> 00:20:36.465 variables here. This shows you

NOTE Confidence: 0.9802762

00:20:36.465 --> 00:20:37.044 a distribution

NOTE Confidence: 0.9679225

00:20:37.960 --> 00:20:39.180 of cannabis use,

NOTE Confidence: 0.95861506

00:20:40.280 --> 00:20:41.880 at five year follow-up. So,

NOTE Confidence: 0.95861506

00:20:41.880 --> 00:20:43.160 again, when they were roughly

NOTE Confidence: 0.95861506

00:20:43.160 --> 00:20:44.360 nineteen years of age. And

NOTE Confidence: 0.95861506

00:20:44.360 --> 00:20:45.740 just a reminder, everybody,

NOTE Confidence: 0.9978196

00:20:46.680 --> 00:20:47.420 at baseline

NOTE Confidence: 0.91378164

00:20:47.880 --> 00:20:48.619 was reporting

NOTE Confidence: 0.85239285

00:20:50.280 --> 00:20:51.664 to be cannabis naive.

NOTE Confidence: 0.97326523

00:20:52.205 --> 00:20:52.845 So we can kind of

NOTE Confidence: 0.97326523

00:20:52.845 --> 00:20:53.664 think of this

NOTE Confidence: 0.8763535

00:20:54.044 --> 00:20:55.184 distribution here

NOTE Confidence: 0.89515346

00:20:55.725 --> 00:20:56.705 as the change,

NOTE Confidence: 0.9147094

00:20:57.644 --> 00:20:58.605 in in kind of,

NOTE Confidence: 0.83652985

00:20:59.164 --> 00:21:00.625 lifetime use total use,

NOTE Confidence: 0.9989689

00:21:01.804 --> 00:21:03.644 between fourteen and nineteen years

NOTE Confidence: 0.9989689

00:21:03.644 --> 00:21:04.304 of age.

NOTE Confidence: 0.9987092

00:21:04.605 --> 00:21:05.105 So

NOTE Confidence: 0.96531314

00:21:05.830 --> 00:21:07.510 little over half, can, you

NOTE Confidence: 0.96531314

00:21:07.510 --> 00:21:09.350 know, remain cannabis naive at

NOTE Confidence: 0.96531314

00:21:09.350 --> 00:21:10.230 follow-up, but,

NOTE Confidence: 0.87379485

00:21:10.950 --> 00:21:12.550 roughly the other half went

NOTE Confidence: 0.87379485

00:21:12.550 --> 00:21:13.050 on

NOTE Confidence: 0.95718557

00:21:13.430 --> 00:21:15.450 to, some degree of use.

NOTE Confidence: 0.9897893

00:21:19.395 --> 00:21:20.435 And so these are just

NOTE Confidence: 0.9897893

00:21:20.435 --> 00:21:21.715 cross sectional results. So this

NOTE Confidence: 0.9897893

00:21:21.715 --> 00:21:23.315 is just looking at,

NOTE Confidence: 0.9258503

00:21:23.875 --> 00:21:26.135 essentially that change in use,

NOTE Confidence: 0.97004205

00:21:27.875 --> 00:21:29.335 relating it to,

NOTE Confidence: 0.9006695

00:21:29.955 --> 00:21:32.055 age nineteen cortical thickness.

NOTE Confidence: 0.9735777

00:21:32.710 --> 00:21:34.230 And we were seeing these

NOTE Confidence: 0.9735777

00:21:34.230 --> 00:21:34.730 significant

NOTE Confidence: 0.78949285

00:21:36.310 --> 00:21:37.369 negative associations.

NOTE Confidence: 0.8606549

00:21:38.150 --> 00:21:39.850 So thinner cortices

NOTE Confidence: 0.9169214

00:21:41.190 --> 00:21:43.130 in these highlighted regions

NOTE Confidence: 0.86066604

00:21:44.869 --> 00:21:45.930 relating to

NOTE Confidence: 0.9860506

00:21:46.765 --> 00:21:48.845 more cannabis use between fourteen

NOTE Confidence: 0.9860506

00:21:48.845 --> 00:21:50.304 and nineteen years of age.

NOTE Confidence: 0.9652673

00:21:51.645 --> 00:21:52.765 And this was really the

NOTE Confidence: 0.9652673

00:21:52.765 --> 00:21:54.445 the primary analysis. So this

NOTE Confidence: 0.9652673

00:21:54.445 --> 00:21:55.984 was a linear mixed effects

NOTE Confidence: 0.9652673

00:21:56.125 --> 00:21:56.625 model,

NOTE Confidence: 0.9383108

00:21:57.965 --> 00:21:59.725 so leveraging all the available

NOTE Confidence: 0.9383108

00:21:59.725 --> 00:22:00.225 data.

NOTE Confidence: 0.9177755

00:22:00.800 --> 00:22:02.160 And so really what we

NOTE Confidence: 0.9177755

00:22:02.160 --> 00:22:03.619 saw here was

NOTE Confidence: 0.9434918

00:22:05.040 --> 00:22:06.800 the the greater degree of

NOTE Confidence: 0.9434918

00:22:06.800 --> 00:22:08.720 use between fourteen and nineteen

NOTE Confidence: 0.9434918

00:22:08.720 --> 00:22:09.700 years of age,

NOTE Confidence: 0.92618906

00:22:10.800 --> 00:22:11.200 the,

NOTE Confidence: 0.971256

00:22:12.080 --> 00:22:13.359 the the greater the rate

NOTE Confidence: 0.971256

00:22:13.359 --> 00:22:15.280 of cortical thinning in these

NOTE Confidence: 0.971256

00:22:15.280 --> 00:22:15.780 regions.

NOTE Confidence: 0.9766348

00:22:18.215 --> 00:22:20.475 And because everybody had complete

NOTE Confidence: 0.9766348

00:22:20.534 --> 00:22:22.215 data kind of by design,

NOTE Confidence: 0.9766348

00:22:22.215 --> 00:22:23.734 we were able to,

NOTE Confidence: 0.98478

00:22:24.135 --> 00:22:25.914 actually look and see

NOTE Confidence: 0.98100054

00:22:26.215 --> 00:22:27.595 the extent to which

NOTE Confidence: 0.98145777

00:22:28.215 --> 00:22:28.715 baseline

NOTE Confidence: 0.92620754

00:22:29.255 --> 00:22:30.940 brain structure or, you know,

NOTE Confidence: 0.92620754

00:22:30.940 --> 00:22:32.000 in this case, specifically,

NOTE Confidence: 0.86069167

00:22:32.619 --> 00:22:34.880 cortical thickness baseline cortical thickness,

NOTE Confidence: 0.9930039

00:22:36.139 --> 00:22:37.340 the extent to which that

NOTE Confidence: 0.9930039

00:22:37.340 --> 00:22:37.840 predicted,

NOTE Confidence: 0.97292876

00:22:38.779 --> 00:22:40.559 subsequent cannabis use.

NOTE Confidence: 0.96968096

00:22:41.179 --> 00:22:42.380 And, really, what we found

NOTE Confidence: 0.96968096

00:22:42.380 --> 00:22:43.340 here, even when we were

NOTE Confidence: 0.96968096

00:22:43.340 --> 00:22:45.494 very lax with our, kind

NOTE Confidence: 0.96968096

00:22:45.494 --> 00:22:47.755 of uncorrected significance threshold,

NOTE Confidence: 0.95333236

00:22:48.775 --> 00:22:50.075 was not much.

NOTE Confidence: 0.95583904

00:22:50.455 --> 00:22:51.975 And the few kind of

NOTE Confidence: 0.95583904

00:22:51.975 --> 00:22:53.195 very weak trends,

NOTE Confidence: 0.98597014

00:22:54.215 --> 00:22:55.575 they were in areas that

NOTE Confidence: 0.98597014

00:22:55.575 --> 00:22:56.635 were not overlapping

NOTE Confidence: 0.9960246

00:22:57.095 --> 00:22:58.715 with where we saw this

NOTE Confidence: 0.9959523

00:22:59.369 --> 00:23:01.130 time by cannabis interaction that

NOTE Confidence: 0.9959523

00:23:01.130 --> 00:23:02.030 I just showed.

NOTE Confidence: 0.8730185

00:23:02.970 --> 00:23:04.430 So really here just suggesting

NOTE Confidence: 0.8730185

00:23:04.570 --> 00:23:05.070 that

NOTE Confidence: 0.9503565

00:23:05.770 --> 00:23:07.390 did not seem to be,

NOTE Confidence: 0.89267707

00:23:08.090 --> 00:23:09.070 kind of preexisting

NOTE Confidence: 0.9996637

00:23:10.010 --> 00:23:10.510 differences

NOTE Confidence: 0.9573884

00:23:11.210 --> 00:23:12.190 in brain structure,

NOTE Confidence: 0.771372

00:23:13.450 --> 00:23:13.950 driving

NOTE Confidence: 0.98322237

00:23:14.644 --> 00:23:15.625 subsequent use.

NOTE Confidence: 0.9909556

00:23:16.565 --> 00:23:18.005 And when we looked at

NOTE Confidence: 0.9909556

00:23:18.164 --> 00:23:19.125 so these are just the

NOTE Confidence: 0.9909556

00:23:19.125 --> 00:23:19.625 the,

NOTE Confidence: 0.7716509

00:23:20.404 --> 00:23:20.904 predicted,

NOTE Confidence: 0.9182165

00:23:21.845 --> 00:23:23.784 values from the models themselves.

NOTE Confidence: 0.9182165

00:23:23.924 --> 00:23:25.705 A very similar story here,

NOTE Confidence: 0.8789268

00:23:26.325 --> 00:23:28.644 where you see, what looks

NOTE Confidence: 0.8789268

00:23:28.644 --> 00:23:29.144 like,

NOTE Confidence: 0.8621833

00:23:32.369 --> 00:23:32.950 you know,

NOTE Confidence: 0.953533

00:23:33.490 --> 00:23:34.070 kind of

NOTE Confidence: 0.9466961

00:23:35.410 --> 00:23:36.869 across levels of

NOTE Confidence: 0.94801027

00:23:37.170 --> 00:23:38.929 of cannabis use between fourteen

NOTE Confidence: 0.94801027

00:23:38.929 --> 00:23:40.309 and nineteen years of age.

NOTE Confidence: 0.9561583

00:23:40.929 --> 00:23:42.050 Really not much in the

NOTE Confidence: 0.9561583

00:23:42.050 --> 00:23:43.590 way of differences at baseline,

NOTE Confidence: 0.9891384

00:23:43.890 --> 00:23:45.385 but then what's looking like

NOTE Confidence: 0.9891384

00:23:45.385 --> 00:23:47.005 this, you know, dose dependent

NOTE Confidence: 0.8670089

00:23:48.184 --> 00:23:48.684 association

NOTE Confidence: 0.89549196

00:23:48.984 --> 00:23:49.725 at follow-up.

NOTE Confidence: 0.9585825

00:23:50.665 --> 00:23:52.025 It's just another peak region

NOTE Confidence: 0.9585825

00:23:52.025 --> 00:23:52.925 here I'm showing.

NOTE Confidence: 0.97376627

00:23:54.184 --> 00:23:55.484 These are so

NOTE Confidence: 0.9341335

00:23:56.665 --> 00:23:58.509 this measure here is symmetrized

NOTE Confidence: 0.96401733

00:23:58.809 --> 00:24:00.169 percent change. So these are

NOTE Confidence: 0.96401733

00:24:00.169 --> 00:24:02.009 unadjusted values. So these are

NOTE Confidence: 0.96401733

00:24:02.009 --> 00:24:03.769 aren't aren't predicted values. These

NOTE Confidence: 0.96401733

00:24:03.769 --> 00:24:04.429 are just,

NOTE Confidence: 0.86824703

00:24:05.210 --> 00:24:06.509 raw values here,

NOTE Confidence: 0.94680345

00:24:07.210 --> 00:24:08.750 and I I think there's

NOTE Confidence: 0.94680345

00:24:08.970 --> 00:24:10.750 a very similar pattern here.

NOTE Confidence: 0.9770918

00:24:11.382 --> 00:24:12.275 I like, you have to

NOTE Confidence: 0.9770918

00:24:12.275 --> 00:24:13.635 squint too hard to see

NOTE Confidence: 0.9770918

00:24:13.635 --> 00:24:14.994 something that looks like a

NOTE Confidence: 0.9770918

00:24:14.994 --> 00:24:17.815 fairly dose dependent association. So

NOTE Confidence: 0.9784705

00:24:18.115 --> 00:24:20.195 so, again, the the more,

NOTE Confidence: 0.9661495

00:24:20.595 --> 00:24:22.515 cannabis used between fourteen and

NOTE Confidence: 0.9661495

00:24:22.515 --> 00:24:24.195 nineteen years of age, the

NOTE Confidence: 0.9661495

00:24:24.195 --> 00:24:25.975 greater the rate of thinning

NOTE Confidence: 0.99723566

00:24:26.299 --> 00:24:28.559 in these largely prefrontal areas.

NOTE Confidence: 0.84848225

00:24:30.539 --> 00:24:31.020 And,

NOTE Confidence: 0.9992491

00:24:31.340 --> 00:24:33.679 we also found some evidence

NOTE Confidence: 0.9992337

00:24:34.059 --> 00:24:34.559 for

NOTE Confidence: 0.9565172

00:24:36.859 --> 00:24:38.539 thinning in these regions. So

NOTE Confidence: 0.9565172

00:24:38.539 --> 00:24:40.320 this cannabis related thinning

NOTE Confidence: 0.99475384

00:24:40.975 --> 00:24:42.434 mediating the association

NOTE Confidence: 0.99972767

00:24:43.135 --> 00:24:43.635 between

NOTE Confidence: 0.9744215

00:24:44.174 --> 00:24:46.014 cannabis use from fourteen to

NOTE Confidence: 0.9744215

00:24:46.014 --> 00:24:47.955 nineteen years of age and,

NOTE Confidence: 0.9733032

00:24:48.575 --> 00:24:49.075 attentional

NOTE Confidence: 0.9979912

00:24:49.375 --> 00:24:49.875 impulsivity

NOTE Confidence: 0.9727714

00:24:50.894 --> 00:24:52.335 at at the follow-up, at

NOTE Confidence: 0.9727714

00:24:52.335 --> 00:24:53.315 five year follow-up.

NOTE Confidence: 0.9366537

00:24:54.630 --> 00:24:56.890 So more cannabis use relating

NOTE Confidence: 0.9366537

00:24:56.950 --> 00:24:58.390 to a greater degree of

NOTE Confidence: 0.9366537

00:24:58.390 --> 00:25:00.010 thinning in turn relating

NOTE Confidence: 0.9224911

00:25:02.869 --> 00:25:04.810 to higher degrees of attentional

NOTE Confidence: 0.9224911

00:25:04.950 --> 00:25:05.450 impulsivity

NOTE Confidence: 0.9973571

00:25:05.910 --> 00:25:07.130 at five year follow-up.

NOTE Confidence: 0.9977425

00:25:09.185 --> 00:25:10.305 This is kind of the

NOTE Confidence: 0.9977425

00:25:10.545 --> 00:25:11.744 this is a busy slide.

NOTE Confidence: 0.9977425

00:25:11.744 --> 00:25:12.484 I'm sorry.

NOTE Confidence: 0.9925422

00:25:15.025 --> 00:25:15.905 So this is really kind

NOTE Confidence: 0.9925422

00:25:15.905 --> 00:25:16.945 of the the the take

NOTE Confidence: 0.9925422

00:25:16.945 --> 00:25:17.425 home,

NOTE Confidence: 0.999196

00:25:17.905 --> 00:25:18.405 slide

NOTE Confidence: 0.96948934

00:25:19.345 --> 00:25:20.165 from our,

NOTE Confidence: 0.8977534

00:25:21.025 --> 00:25:22.085 initial work here.

NOTE Confidence: 0.961005

00:25:22.399 --> 00:25:22.799 So,

NOTE Confidence: 0.9902864

00:25:23.200 --> 00:25:24.399 in the top left in

NOTE Confidence: 0.9902864

00:25:24.399 --> 00:25:24.899 green,

NOTE Confidence: 0.989961

00:25:25.359 --> 00:25:27.119 that is just the the,

NOTE Confidence: 0.9968927

00:25:27.519 --> 00:25:28.899 the age effect.

NOTE Confidence: 0.99687177

00:25:29.679 --> 00:25:31.539 So in this particular sample,

NOTE Confidence: 0.868894

00:25:32.639 --> 00:25:33.380 this is,

NOTE Confidence: 0.9832809

00:25:35.234 --> 00:25:36.355 these are the areas that

NOTE Confidence: 0.9832809

00:25:36.355 --> 00:25:38.595 are showing significant age related

NOTE Confidence: 0.9832809

00:25:38.595 --> 00:25:39.095 thinning.

NOTE Confidence: 0.9070929

00:25:39.955 --> 00:25:41.494 And the top in blue

NOTE Confidence: 0.95227295

00:25:41.955 --> 00:25:42.835 is the,

NOTE Confidence: 0.97687393

00:25:43.795 --> 00:25:45.655 the time by cannabis interaction

NOTE Confidence: 0.97687393

00:25:45.795 --> 00:25:47.015 that I just described.

NOTE Confidence: 0.9934808

00:25:47.570 --> 00:25:48.070 I've

NOTE Confidence: 0.9607727

00:25:48.450 --> 00:25:50.210 relaxed the threshold here just

NOTE Confidence: 0.9607727

00:25:50.210 --> 00:25:50.950 for visualization

NOTE Confidence: 0.9091178

00:25:51.410 --> 00:25:53.410 purposes, but that's what's shown

NOTE Confidence: 0.9091178

00:25:53.410 --> 00:25:53.990 in blue.

NOTE Confidence: 0.9561057

00:25:54.530 --> 00:25:56.050 And then thank you to,

NOTE Confidence: 0.9561057

00:25:56.369 --> 00:25:57.270 Doctor. D'Souza

NOTE Confidence: 0.6901517

00:25:58.690 --> 00:25:59.430 and colleagues.

NOTE Confidence: 0.94859254

00:26:00.445 --> 00:26:02.305 We were able to obtain,

NOTE Confidence: 0.91199744

00:26:02.685 --> 00:26:04.445 a pet map, albeit, you

NOTE Confidence: 0.91199744

00:26:04.445 --> 00:26:06.065 know, a pet map derived,

NOTE Confidence: 0.99980927

00:26:06.765 --> 00:26:07.505 from a

NOTE Confidence: 0.9520852

00:26:07.805 --> 00:26:09.025 a separate sample,

NOTE Confidence: 0.9432981

00:26:09.645 --> 00:26:11.244 of adults. Clearly would not

NOTE Confidence: 0.9432981

00:26:11.244 --> 00:26:12.925 be ethical to do pet

NOTE Confidence: 0.9432981

00:26:12.925 --> 00:26:13.425 scanning,

NOTE Confidence: 0.7870517

00:26:14.365 --> 00:26:15.265 on on

NOTE Confidence: 0.9469246

00:26:16.020 --> 00:26:17.560 developing adolescents here.

NOTE Confidence: 0.9627455

00:26:17.940 --> 00:26:19.300 But, we have a PET

NOTE Confidence: 0.9627455

00:26:19.300 --> 00:26:20.260 map of,

NOTE Confidence: 0.9000261

00:26:20.820 --> 00:26:22.600 CB one receptor availability.

NOTE Confidence: 0.9430646

00:26:23.460 --> 00:26:24.740 And so really just kind

NOTE Confidence: 0.9430646

00:26:24.740 --> 00:26:25.940 of what we're showing here

NOTE Confidence: 0.9430646

00:26:25.940 --> 00:26:27.140 is that these maps are

NOTE Confidence: 0.9430646

00:26:27.140 --> 00:26:27.640 correlated,

NOTE Confidence: 0.95970446

00:26:29.855 --> 00:26:30.734 and kind of the two

NOTE Confidence: 0.95970446

00:26:30.734 --> 00:26:31.934 bottom figures here. So on

NOTE Confidence: 0.95970446

00:26:31.934 --> 00:26:33.155 the bottom left,

NOTE Confidence: 0.99800193

00:26:34.255 --> 00:26:35.294 where you kind of see

NOTE Confidence: 0.99800193

00:26:35.294 --> 00:26:36.355 the green and

NOTE Confidence: 0.83415294

00:26:36.655 --> 00:26:37.315 and blue,

NOTE Confidence: 0.8464439

00:26:38.255 --> 00:26:38.755 overlaid,

NOTE Confidence: 0.9734429

00:26:39.855 --> 00:26:41.615 it's suggesting that, you know,

NOTE Confidence: 0.9734429

00:26:41.615 --> 00:26:43.554 where we're seeing this cannabis

NOTE Confidence: 0.9652308

00:26:44.070 --> 00:26:45.049 time interaction,

NOTE Confidence: 0.9992239

00:26:46.230 --> 00:26:47.609 these are largely

NOTE Confidence: 0.9998264

00:26:47.990 --> 00:26:48.490 areas

NOTE Confidence: 0.9994921

00:26:48.950 --> 00:26:50.549 that are already undergoing the

NOTE Confidence: 0.9994921

00:26:50.549 --> 00:26:52.149 greatest degree of age related

NOTE Confidence: 0.9994921

00:26:52.149 --> 00:26:52.649 change.

NOTE Confidence: 0.9984298

00:26:53.109 --> 00:26:53.509 So,

NOTE Confidence: 0.99256295

00:26:54.230 --> 00:26:55.190 you know, we might think

NOTE Confidence: 0.99256295

00:26:55.190 --> 00:26:56.970 of these areas as perhaps

NOTE Confidence: 0.99256295

00:26:57.109 --> 00:26:58.855 being more plastic, right,

NOTE Confidence: 0.9245901

00:26:59.395 --> 00:27:00.675 in in the context of

NOTE Confidence: 0.9245901

00:27:00.675 --> 00:27:01.175 development.

NOTE Confidence: 0.98034954

00:27:02.595 --> 00:27:03.255 And then,

NOTE Confidence: 0.9990204

00:27:04.035 --> 00:27:04.695 the bottom

NOTE Confidence: 0.93620634

00:27:05.395 --> 00:27:06.435 right where we kind of

NOTE Confidence: 0.93620634

00:27:06.435 --> 00:27:06.935 see

NOTE Confidence: 0.98270595

00:27:07.555 --> 00:27:09.015 the blue, red, and magenta,

NOTE Confidence: 0.9984517

00:27:10.355 --> 00:27:11.095 this is

NOTE Confidence: 0.9997564

00:27:11.460 --> 00:27:11.960 showing

NOTE Confidence: 0.95370466

00:27:12.340 --> 00:27:13.700 that we're, again, we're we're

NOTE Confidence: 0.95370466

00:27:13.700 --> 00:27:15.880 seeing this time by cannabis

NOTE Confidence: 0.95370466

00:27:15.940 --> 00:27:16.440 interaction.

NOTE Confidence: 0.9989447

00:27:17.140 --> 00:27:17.880 On average,

NOTE Confidence: 0.94132215

00:27:18.500 --> 00:27:20.280 these areas tend to be

NOTE Confidence: 0.94132215

00:27:20.419 --> 00:27:21.940 higher in CB one receptor

NOTE Confidence: 0.94132215

00:27:21.940 --> 00:27:22.440 availability.

NOTE Confidence: 0.85797817

00:27:23.780 --> 00:27:25.539 So, just kind of in

NOTE Confidence: 0.85797817

00:27:25.859 --> 00:27:26.359 again,

NOTE Confidence: 0.9944585

00:27:26.725 --> 00:27:27.845 all circumstantial evidence,

NOTE Confidence: 0.9968452

00:27:29.205 --> 00:27:30.184 but, you know,

NOTE Confidence: 0.9073636

00:27:30.725 --> 00:27:31.384 a potentially

NOTE Confidence: 0.9933686

00:27:31.764 --> 00:27:32.984 kind of compelling

NOTE Confidence: 0.92621386

00:27:36.725 --> 00:27:38.984 message coalescing out of this.

NOTE Confidence: 0.9767245

00:27:41.650 --> 00:27:42.550 And so

NOTE Confidence: 0.75977063

00:27:43.170 --> 00:27:44.630 at at at at UVM,

NOTE Confidence: 0.6380096

00:27:46.930 --> 00:27:47.670 I'm incredible

NOTE Confidence: 0.9058458

00:27:47.970 --> 00:27:49.650 I mean, incredibly fortunate to

NOTE Confidence: 0.9058458

00:27:49.650 --> 00:27:50.850 have, so there's so there's

NOTE Confidence: 0.9058458

00:27:50.850 --> 00:27:52.210 a t thirty two program

NOTE Confidence: 0.9058458

00:27:52.210 --> 00:27:53.750 here in complex systems.

NOTE Confidence: 0.964509

00:27:54.455 --> 00:27:56.475 I I have the wonderful,

NOTE Confidence: 0.77625

00:27:58.615 --> 00:27:59.595 fortune of

NOTE Confidence: 0.985968

00:28:00.055 --> 00:28:01.975 being able to to interact

NOTE Confidence: 0.985968

00:28:01.975 --> 00:28:02.955 with incredibly

NOTE Confidence: 0.99469763

00:28:03.655 --> 00:28:04.795 smart people.

NOTE Confidence: 0.98964494

00:28:05.734 --> 00:28:06.935 At the time, there was

NOTE Confidence: 0.98964494

00:28:06.935 --> 00:28:07.435 a

NOTE Confidence: 0.859487

00:28:07.975 --> 00:28:09.435 postdoc, Max Owens,

NOTE Confidence: 0.95150965

00:28:10.010 --> 00:28:11.369 and there, is,

NOTE Confidence: 0.9177924

00:28:11.770 --> 00:28:12.890 there's a faculty member, Nick

NOTE Confidence: 0.9177924

00:28:12.890 --> 00:28:13.869 Allgier, who

NOTE Confidence: 0.96359247

00:28:14.250 --> 00:28:16.010 actually, was, yeah, running the

NOTE Confidence: 0.96359247

00:28:16.010 --> 00:28:16.990 t thirty two.

NOTE Confidence: 0.9876749

00:28:19.210 --> 00:28:20.890 They looked at this initial

NOTE Confidence: 0.9876749

00:28:20.890 --> 00:28:21.390 work,

NOTE Confidence: 0.9976095

00:28:21.690 --> 00:28:22.190 and

NOTE Confidence: 0.9698531

00:28:22.804 --> 00:28:24.265 they applied Bayesian,

NOTE Confidence: 0.96951056

00:28:24.725 --> 00:28:26.105 causal network modeling.

NOTE Confidence: 0.93930966

00:28:27.045 --> 00:28:28.565 And and the basic idea

NOTE Confidence: 0.93930966

00:28:28.565 --> 00:28:30.405 being here that, you know,

NOTE Confidence: 0.93930966

00:28:30.405 --> 00:28:30.965 you can,

NOTE Confidence: 0.98179686

00:28:31.365 --> 00:28:32.105 you can

NOTE Confidence: 0.97368217

00:28:32.565 --> 00:28:34.565 essentially have your variables represent

NOTE Confidence: 0.97368217

00:28:34.565 --> 00:28:35.065 nodes,

NOTE Confidence: 0.99916995

00:28:35.830 --> 00:28:37.610 and you can have directed

NOTE Confidence: 0.99916995

00:28:37.750 --> 00:28:38.890 edges that

NOTE Confidence: 0.8608395

00:28:39.350 --> 00:28:41.690 are informed by conditional probabilities,

NOTE Confidence: 0.937441

00:28:42.950 --> 00:28:44.470 and then the actual structure

NOTE Confidence: 0.937441

00:28:44.470 --> 00:28:45.850 of the network itself,

NOTE Confidence: 0.87038803

00:28:47.190 --> 00:28:49.350 informed by conditional dependencies in

NOTE Confidence: 0.87038803

00:28:49.350 --> 00:28:50.010 the variables.

NOTE Confidence: 0.982118

00:28:50.715 --> 00:28:51.835 And so this is kind

NOTE Confidence: 0.982118

00:28:51.835 --> 00:28:53.295 of a data driven approach,

NOTE Confidence: 0.9332048

00:28:54.475 --> 00:28:55.934 that at least conceptually,

NOTE Confidence: 0.9794779

00:28:56.955 --> 00:28:57.995 might bring us a little

NOTE Confidence: 0.9794779

00:28:57.995 --> 00:28:59.375 bit closer to,

NOTE Confidence: 0.99931085

00:28:59.835 --> 00:29:00.335 some

NOTE Confidence: 0.9797131

00:29:01.275 --> 00:29:03.054 some some causal evidence.

NOTE Confidence: 0.54175895

00:29:04.395 --> 00:29:04.895 And

NOTE Confidence: 0.85244524

00:29:05.710 --> 00:29:06.210 so,

NOTE Confidence: 0.9977763

00:29:07.150 --> 00:29:08.910 what what they did, they

NOTE Confidence: 0.9977763

00:29:08.910 --> 00:29:10.270 started off with just kind

NOTE Confidence: 0.9977763

00:29:10.270 --> 00:29:10.930 of a

NOTE Confidence: 0.9257118

00:29:11.870 --> 00:29:13.570 a limited set of variables

NOTE Confidence: 0.9257118

00:29:13.630 --> 00:29:14.130 here.

NOTE Confidence: 0.99859685

00:29:14.750 --> 00:29:15.810 They ran

NOTE Confidence: 0.9996475

00:29:16.110 --> 00:29:16.930 ten thousand

NOTE Confidence: 0.98096293

00:29:17.230 --> 00:29:17.730 bootstrap

NOTE Confidence: 0.75347674

00:29:18.270 --> 00:29:18.770 resamplings,

NOTE Confidence: 0.94861245

00:29:20.605 --> 00:29:22.285 And what they found was,

NOTE Confidence: 0.94861245

00:29:22.285 --> 00:29:23.965 I think, over ninety six

NOTE Confidence: 0.94861245

00:29:23.965 --> 00:29:24.465 percent

NOTE Confidence: 0.94176185

00:29:25.245 --> 00:29:25.745 of

NOTE Confidence: 0.7789032

00:29:26.845 --> 00:29:27.585 the models

NOTE Confidence: 0.9967618

00:29:28.045 --> 00:29:30.545 were indicating that cannabis use

NOTE Confidence: 0.9967618

00:29:30.765 --> 00:29:32.545 was having a causal impact

NOTE Confidence: 0.9919457

00:29:33.005 --> 00:29:33.505 on

NOTE Confidence: 0.98767143

00:29:35.280 --> 00:29:36.960 the the thinning between fourteen

NOTE Confidence: 0.98767143

00:29:36.960 --> 00:29:38.580 and nineteen years of age.

NOTE Confidence: 0.98767143

00:29:38.880 --> 00:29:39.380 So,

NOTE Confidence: 0.9919558

00:29:40.960 --> 00:29:41.460 again,

NOTE Confidence: 0.95579547

00:29:42.080 --> 00:29:43.220 nothing that is,

NOTE Confidence: 0.867829

00:29:44.000 --> 00:29:44.500 definitive,

NOTE Confidence: 0.92577344

00:29:44.880 --> 00:29:45.700 but perhaps,

NOTE Confidence: 0.9998272

00:29:46.320 --> 00:29:46.820 another

NOTE Confidence: 0.98420334

00:29:47.295 --> 00:29:48.655 kind of piece of of

NOTE Confidence: 0.98420334

00:29:48.655 --> 00:29:50.815 circumstantial evidence here. And and

NOTE Confidence: 0.98420334

00:29:50.815 --> 00:29:52.355 what's interesting, even when,

NOTE Confidence: 0.9724746

00:29:52.975 --> 00:29:54.675 we provided these algorithms

NOTE Confidence: 0.99984604

00:29:55.055 --> 00:29:56.515 with other potential

NOTE Confidence: 0.9406165

00:29:56.815 --> 00:29:57.315 confounders,

NOTE Confidence: 0.9821987

00:29:58.335 --> 00:30:00.195 like measures of childhood trauma,

NOTE Confidence: 0.9739933

00:30:02.110 --> 00:30:03.090 like SES,

NOTE Confidence: 0.9834544

00:30:03.390 --> 00:30:05.649 various SES measures, ADHD

NOTE Confidence: 0.88404655

00:30:05.950 --> 00:30:06.450 symptomatology,

NOTE Confidence: 0.9476514

00:30:08.909 --> 00:30:10.210 in this version,

NOTE Confidence: 0.9706757

00:30:10.909 --> 00:30:12.750 co occurring substance use was

NOTE Confidence: 0.9706757

00:30:12.750 --> 00:30:14.029 also put in there. So

NOTE Confidence: 0.9706757

00:30:14.029 --> 00:30:16.125 tobacco use, alcohol use. We

NOTE Confidence: 0.9706757

00:30:16.125 --> 00:30:17.645 kind of threw even more

NOTE Confidence: 0.9706757

00:30:17.645 --> 00:30:18.685 stuff at it that could

NOTE Confidence: 0.9706757

00:30:18.685 --> 00:30:20.445 potentially be related. I didn't

NOTE Confidence: 0.9706757

00:30:20.445 --> 00:30:21.405 highlight it, but we also

NOTE Confidence: 0.9706757

00:30:21.405 --> 00:30:24.205 had a few, polygenic risk

NOTE Confidence: 0.9706757

00:30:24.205 --> 00:30:24.705 scores.

NOTE Confidence: 0.9762009

00:30:25.565 --> 00:30:27.265 So for, you know, polygenic

NOTE Confidence: 0.9526775

00:30:27.885 --> 00:30:30.080 risk for lifetime cannabis use,

NOTE Confidence: 0.9526775

00:30:30.080 --> 00:30:31.440 polygenic risk for,

NOTE Confidence: 0.9631838

00:30:31.840 --> 00:30:33.220 cannabis use disorder.

NOTE Confidence: 0.948493

00:30:34.720 --> 00:30:36.500 And, again, overwhelmingly,

NOTE Confidence: 0.9047619

00:30:37.600 --> 00:30:38.720 the the,

NOTE Confidence: 0.99911416

00:30:39.440 --> 00:30:41.779 algorithm indicated cannabis use

NOTE Confidence: 0.87937766

00:30:42.335 --> 00:30:42.835 impacting,

NOTE Confidence: 0.9927548

00:30:44.735 --> 00:30:45.875 prefrontal thickness.

NOTE Confidence: 0.80771196

00:30:48.415 --> 00:30:48.915 So,

NOTE Confidence: 0.9256713

00:30:50.335 --> 00:30:51.395 few years ago,

NOTE Confidence: 0.99502945

00:30:52.655 --> 00:30:54.675 age twenty two data became,

NOTE Confidence: 0.97340405

00:30:55.295 --> 00:30:56.275 newly available,

NOTE Confidence: 0.8662189

00:30:56.975 --> 00:30:57.635 in Imogen.

NOTE Confidence: 0.95310754

00:30:58.710 --> 00:30:59.830 And so we immediately had

NOTE Confidence: 0.95310754

00:30:59.830 --> 00:31:00.950 a, you know, a a

NOTE Confidence: 0.95310754

00:31:00.950 --> 00:31:01.929 couple questions.

NOTE Confidence: 0.9769521

00:31:04.309 --> 00:31:05.929 So one of the questions

NOTE Confidence: 0.9769521

00:31:05.990 --> 00:31:07.270 was, you know, can we

NOTE Confidence: 0.9769521

00:31:07.270 --> 00:31:08.410 still see,

NOTE Confidence: 0.99873215

00:31:10.070 --> 00:31:10.570 any

NOTE Confidence: 0.9776175

00:31:11.325 --> 00:31:13.505 markers of adolescent cannabis use

NOTE Confidence: 0.9776175

00:31:13.725 --> 00:31:15.325 in early adulthood? So, again,

NOTE Confidence: 0.9776175

00:31:15.325 --> 00:31:16.365 around twenty two years of

NOTE Confidence: 0.9776175

00:31:16.365 --> 00:31:16.865 age,

NOTE Confidence: 0.99846846

00:31:17.645 --> 00:31:18.145 or

NOTE Confidence: 0.9979845

00:31:18.605 --> 00:31:20.225 is that is that gone?

NOTE Confidence: 0.8934745

00:31:22.205 --> 00:31:23.645 And then another question too

NOTE Confidence: 0.8934745

00:31:23.645 --> 00:31:24.145 was,

NOTE Confidence: 0.9994625

00:31:24.524 --> 00:31:26.250 you know, we figured that

NOTE Confidence: 0.9994625

00:31:26.410 --> 00:31:27.690 we would also be able

NOTE Confidence: 0.9994625

00:31:27.690 --> 00:31:28.990 to look at individuals

NOTE Confidence: 0.9801056

00:31:29.370 --> 00:31:31.550 who had initiated cannabis use,

NOTE Confidence: 0.9891495

00:31:32.570 --> 00:31:34.330 between nineteen and twenty two

NOTE Confidence: 0.9891495

00:31:34.330 --> 00:31:35.310 years of age.

NOTE Confidence: 0.9770229

00:31:35.770 --> 00:31:37.050 And we could look to

NOTE Confidence: 0.9770229

00:31:37.050 --> 00:31:37.550 see,

NOTE Confidence: 0.9916576

00:31:38.490 --> 00:31:40.190 what the what the

NOTE Confidence: 0.99963886

00:31:40.804 --> 00:31:42.184 pattern of longitudinal

NOTE Confidence: 0.92848206

00:31:42.485 --> 00:31:43.705 brain change was,

NOTE Confidence: 0.96087074

00:31:45.285 --> 00:31:47.225 with early adult initiation.

NOTE Confidence: 0.996891

00:31:47.525 --> 00:31:48.885 Did it look similar to

NOTE Confidence: 0.996891

00:31:48.885 --> 00:31:49.945 what we were seeing,

NOTE Confidence: 0.9964742

00:31:50.245 --> 00:31:51.924 with our fourteen to nineteen

NOTE Confidence: 0.9964742

00:31:51.924 --> 00:31:52.424 findings?

NOTE Confidence: 0.9771064

00:31:53.480 --> 00:31:54.680 So starting off with kind

NOTE Confidence: 0.9771064

00:31:54.680 --> 00:31:56.220 of that that first question,

NOTE Confidence: 0.9825926

00:31:57.480 --> 00:31:58.060 we identified,

NOTE Confidence: 0.9555118

00:31:58.840 --> 00:31:59.340 people,

NOTE Confidence: 0.8706212

00:31:59.800 --> 00:32:00.300 with,

NOTE Confidence: 0.9656498

00:32:01.000 --> 00:32:02.760 in the age twenty two

NOTE Confidence: 0.9656498

00:32:02.760 --> 00:32:03.260 data,

NOTE Confidence: 0.9192756

00:32:05.160 --> 00:32:07.160 where we there, was QC

NOTE Confidence: 0.9192756

00:32:07.160 --> 00:32:08.895 imaging data for them.

NOTE Confidence: 0.9996402

00:32:09.855 --> 00:32:10.895 And we were able to

NOTE Confidence: 0.9996402

00:32:10.895 --> 00:32:12.035 look and see

NOTE Confidence: 0.9840405

00:32:12.415 --> 00:32:14.115 the extent to which adolescent

NOTE Confidence: 0.9840405

00:32:14.175 --> 00:32:16.175 cannabis use was relating to

NOTE Confidence: 0.9840405

00:32:16.175 --> 00:32:17.775 cortical thickness at age twenty

NOTE Confidence: 0.9840405

00:32:17.775 --> 00:32:18.655 two. And what's

NOTE Confidence: 0.98629975

00:32:19.375 --> 00:32:20.735 this is maybe a a

NOTE Confidence: 0.98629975

00:32:20.735 --> 00:32:21.955 nerdy point, but

NOTE Confidence: 0.9601592

00:32:22.655 --> 00:32:23.955 I'm impressed with it

NOTE Confidence: 0.9973073

00:32:24.330 --> 00:32:24.830 anyways.

NOTE Confidence: 0.95292497

00:32:25.610 --> 00:32:26.909 These data also,

NOTE Confidence: 0.94872266

00:32:27.450 --> 00:32:28.650 when we got h twenty

NOTE Confidence: 0.94872266

00:32:28.650 --> 00:32:28.890 two,

NOTE Confidence: 0.8643508

00:32:30.169 --> 00:32:31.710 data, from Imogen,

NOTE Confidence: 0.9511972

00:32:32.970 --> 00:32:34.330 because there was a newer

NOTE Confidence: 0.9511972

00:32:34.330 --> 00:32:35.770 version of Civette that was

NOTE Confidence: 0.9511972

00:32:35.770 --> 00:32:37.549 available and we were recommended

NOTE Confidence: 0.97401726

00:32:37.850 --> 00:32:39.485 that we should run everything

NOTE Confidence: 0.97401726

00:32:39.485 --> 00:32:40.945 through the newest version.

NOTE Confidence: 0.9972284

00:32:41.965 --> 00:32:43.485 All of the data got

NOTE Confidence: 0.9972284

00:32:43.485 --> 00:32:43.985 reprocessed

NOTE Confidence: 0.6537043

00:32:44.605 --> 00:32:46.305 and re q c'd.

NOTE Confidence: 0.98884326

00:32:47.165 --> 00:32:48.285 We had I I'm not

NOTE Confidence: 0.98884326

00:32:48.285 --> 00:32:49.165 showing it here, but we

NOTE Confidence: 0.98884326

00:32:49.165 --> 00:32:50.385 had nearly identical

NOTE Confidence: 0.9996656

00:32:51.005 --> 00:32:51.505 findings

NOTE Confidence: 0.9870006

00:32:52.850 --> 00:32:54.230 from what I just showed.

NOTE Confidence: 0.9592277

00:32:55.650 --> 00:32:57.410 And then also, you know,

NOTE Confidence: 0.9592277

00:32:57.410 --> 00:32:59.010 interestingly here, you know, we're

NOTE Confidence: 0.9592277

00:32:59.010 --> 00:33:01.170 seeing areas that showed up

NOTE Confidence: 0.9592277

00:33:01.170 --> 00:33:02.550 in that time by cannabis

NOTE Confidence: 0.9592277

00:33:02.610 --> 00:33:03.110 interaction.

NOTE Confidence: 0.9478474

00:33:03.810 --> 00:33:05.650 So what we're what we're

NOTE Confidence: 0.9478474

00:33:05.650 --> 00:33:07.155 actually seeing here is that

NOTE Confidence: 0.9478474

00:33:07.315 --> 00:33:08.215 the more adolescent

NOTE Confidence: 0.9872774

00:33:08.675 --> 00:33:10.995 cannabis use reported, so between

NOTE Confidence: 0.9872774

00:33:10.995 --> 00:33:12.195 fourteen and nineteen years of

NOTE Confidence: 0.9872774

00:33:12.195 --> 00:33:13.735 age, the thinner

NOTE Confidence: 0.9825045

00:33:14.035 --> 00:33:14.535 these,

NOTE Confidence: 0.9804064

00:33:14.995 --> 00:33:15.895 these cortices

NOTE Confidence: 0.9747567

00:33:16.355 --> 00:33:17.715 shown in blue were at

NOTE Confidence: 0.9747567

00:33:17.715 --> 00:33:18.935 age twenty two.

NOTE Confidence: 0.999202

00:33:19.475 --> 00:33:21.315 And what's interesting is that

NOTE Confidence: 0.999202

00:33:21.315 --> 00:33:22.615 even when we controlled

NOTE Confidence: 0.9973671

00:33:23.850 --> 00:33:25.390 for past year use,

NOTE Confidence: 0.99901664

00:33:26.010 --> 00:33:27.390 at age twenty two,

NOTE Confidence: 0.9985359

00:33:27.770 --> 00:33:28.830 it had no effect.

NOTE Confidence: 0.786134

00:33:29.210 --> 00:33:29.610 There,

NOTE Confidence: 0.9978528

00:33:30.330 --> 00:33:31.950 so it really was

NOTE Confidence: 0.98656034

00:33:32.410 --> 00:33:34.170 suggest suggesting that there was

NOTE Confidence: 0.98656034

00:33:34.170 --> 00:33:35.630 something about adolescent

NOTE Confidence: 0.99772924

00:33:35.930 --> 00:33:36.430 use

NOTE Confidence: 0.97781837

00:33:37.065 --> 00:33:38.684 that seemed to have this

NOTE Confidence: 0.97781837

00:33:38.904 --> 00:33:40.605 more enduring mark,

NOTE Confidence: 0.9590104

00:33:41.304 --> 00:33:43.625 on cerebral cortical structure. And,

NOTE Confidence: 0.9590104

00:33:43.625 --> 00:33:44.904 again, in areas where we

NOTE Confidence: 0.9590104

00:33:44.904 --> 00:33:46.044 saw that time,

NOTE Confidence: 0.968247

00:33:46.585 --> 00:33:48.745 by cannabis interaction from fourteen

NOTE Confidence: 0.968247

00:33:48.745 --> 00:33:49.404 to nineteen.

NOTE Confidence: 0.98286855

00:33:53.440 --> 00:33:54.720 And then yeah. So so

NOTE Confidence: 0.98286855

00:33:54.720 --> 00:33:56.559 then looking so, you know,

NOTE Confidence: 0.98286855

00:33:56.559 --> 00:33:58.419 looking to address the question

NOTE Confidence: 0.98286855

00:33:58.480 --> 00:34:00.480 of what, you know, what

NOTE Confidence: 0.98286855

00:34:00.480 --> 00:34:02.559 brain changes were associated with

NOTE Confidence: 0.98286855

00:34:02.559 --> 00:34:04.179 young adult cannabis initiation.

NOTE Confidence: 0.9544575

00:34:06.115 --> 00:34:07.955 And so we had our

NOTE Confidence: 0.9544575

00:34:07.955 --> 00:34:09.015 groups here. So,

NOTE Confidence: 0.9963084

00:34:09.635 --> 00:34:10.135 roughly

NOTE Confidence: 0.9736536

00:34:10.435 --> 00:34:10.935 seven

NOTE Confidence: 0.6927296

00:34:11.875 --> 00:34:13.415 so seven hundred four participants,

NOTE Confidence: 0.99593383

00:34:13.875 --> 00:34:15.255 almost two thousand MRIs.

NOTE Confidence: 0.99525946

00:34:16.195 --> 00:34:17.094 So we had

NOTE Confidence: 0.9916128

00:34:18.540 --> 00:34:19.760 adolescent initiators,

NOTE Confidence: 0.99315786

00:34:21.020 --> 00:34:22.780 who started using between fourteen

NOTE Confidence: 0.99315786

00:34:22.780 --> 00:34:23.440 and nineteen.

NOTE Confidence: 0.86607057

00:34:23.980 --> 00:34:25.580 And as just an aside

NOTE Confidence: 0.86607057

00:34:25.580 --> 00:34:26.080 here,

NOTE Confidence: 0.9398091

00:34:26.700 --> 00:34:27.820 and we were hoping that

NOTE Confidence: 0.9398091

00:34:27.820 --> 00:34:29.280 there would be enough

NOTE Confidence: 0.97992647

00:34:31.364 --> 00:34:32.585 adolescent initiators

NOTE Confidence: 0.9994543

00:34:33.285 --> 00:34:34.665 that had used

NOTE Confidence: 0.95107096

00:34:35.125 --> 00:34:36.725 between fourteen and nineteen and

NOTE Confidence: 0.95107096

00:34:36.725 --> 00:34:37.945 then not used,

NOTE Confidence: 0.95145893

00:34:39.285 --> 00:34:40.985 from nineteen to twenty two.

NOTE Confidence: 0.95145893

00:34:41.205 --> 00:34:42.425 And, unfortunately,

NOTE Confidence: 0.99125963

00:34:42.965 --> 00:34:44.005 I mean, there I forget

NOTE Confidence: 0.99125963

00:34:44.005 --> 00:34:45.180 the exact number, but I

NOTE Confidence: 0.99125963

00:34:45.180 --> 00:34:45.900 think it was on the

NOTE Confidence: 0.99125963

00:34:46.060 --> 00:34:47.180 it was literally it was

NOTE Confidence: 0.99125963

00:34:47.180 --> 00:34:48.400 less than twenty

NOTE Confidence: 0.9174819

00:34:49.020 --> 00:34:49.520 where,

NOTE Confidence: 0.99813706

00:34:50.540 --> 00:34:51.839 we saw that pattern.

NOTE Confidence: 0.99469805

00:34:52.219 --> 00:34:53.119 So, you know,

NOTE Confidence: 0.9986074

00:34:53.420 --> 00:34:54.080 the adolescent

NOTE Confidence: 0.9947729

00:34:54.460 --> 00:34:54.960 initiators

NOTE Confidence: 0.97384083

00:34:55.500 --> 00:34:56.960 were also kind of continued

NOTE Confidence: 0.97384083

00:34:57.099 --> 00:34:58.619 users. So they they kind

NOTE Confidence: 0.97384083

00:34:58.619 --> 00:35:00.995 of continued right through age

NOTE Confidence: 0.97384083

00:35:00.995 --> 00:35:01.735 twenty two.

NOTE Confidence: 0.9902732

00:35:02.915 --> 00:35:04.215 The young adult initiators

NOTE Confidence: 0.95064145

00:35:04.835 --> 00:35:06.935 were cannabis naive at baseline,

NOTE Confidence: 0.95064145

00:35:06.995 --> 00:35:07.735 but then,

NOTE Confidence: 0.5576318

00:35:08.755 --> 00:35:09.895 when in end,

NOTE Confidence: 0.9478596

00:35:10.355 --> 00:35:12.250 at at age nineteen, but

NOTE Confidence: 0.9478596

00:35:12.250 --> 00:35:13.850 went on to initiate between

NOTE Confidence: 0.9478596

00:35:13.850 --> 00:35:15.450 nineteen and twenty two. And

NOTE Confidence: 0.9478596

00:35:15.450 --> 00:35:15.950 then,

NOTE Confidence: 0.94596815

00:35:16.490 --> 00:35:17.790 the cannabis naive,

NOTE Confidence: 0.9917652

00:35:18.330 --> 00:35:20.590 group, those individuals that remained

NOTE Confidence: 0.9917652

00:35:20.650 --> 00:35:22.510 cannabis naive throughout

NOTE Confidence: 0.9469931

00:35:22.890 --> 00:35:24.430 the the entire study.

NOTE Confidence: 0.99662983

00:35:25.734 --> 00:35:26.775 And so this is just

NOTE Confidence: 0.99662983

00:35:26.775 --> 00:35:28.474 kind of a demographics table.

NOTE Confidence: 0.98569363

00:35:29.094 --> 00:35:30.614 So, really, we only saw

NOTE Confidence: 0.98569363

00:35:30.614 --> 00:35:32.614 kind of significant differences with

NOTE Confidence: 0.98569363

00:35:32.614 --> 00:35:33.675 respect to,

NOTE Confidence: 0.99387026

00:35:34.935 --> 00:35:36.695 age at the nine year

NOTE Confidence: 0.99387026

00:35:36.695 --> 00:35:37.895 follow-up. So when,

NOTE Confidence: 0.9994874

00:35:38.454 --> 00:35:38.954 participants

NOTE Confidence: 0.99789536

00:35:39.335 --> 00:35:39.835 were

NOTE Confidence: 0.96728235

00:35:41.010 --> 00:35:42.290 roughly twenty two years of

NOTE Confidence: 0.96728235

00:35:42.290 --> 00:35:42.850 age, and it was, you

NOTE Confidence: 0.96728235

00:35:42.850 --> 00:35:44.950 know, a relatively small difference,

NOTE Confidence: 0.9920814

00:35:45.890 --> 00:35:47.010 and and, you know, we

NOTE Confidence: 0.9920814

00:35:47.010 --> 00:35:48.210 were aware of the,

NOTE Confidence: 0.94202805

00:35:48.770 --> 00:35:49.730 just kind of the the

NOTE Confidence: 0.94202805

00:35:49.730 --> 00:35:50.230 significant

NOTE Confidence: 0.9873009

00:35:50.850 --> 00:35:52.950 differences with respect to sex.

NOTE Confidence: 0.88155234

00:35:54.405 --> 00:35:55.844 We did our we still

NOTE Confidence: 0.88155234

00:35:55.844 --> 00:35:56.965 controlled for these,

NOTE Confidence: 0.7905739

00:35:57.364 --> 00:35:57.864 covariates.

NOTE Confidence: 0.9050543

00:35:58.165 --> 00:35:58.565 But,

NOTE Confidence: 0.9989749

00:35:59.205 --> 00:36:00.344 for the other measures,

NOTE Confidence: 0.997622

00:36:01.125 --> 00:36:02.585 we did not find significant

NOTE Confidence: 0.997622

00:36:02.805 --> 00:36:03.305 differences.

NOTE Confidence: 0.96270186

00:36:05.445 --> 00:36:06.485 And just kind of maybe

NOTE Confidence: 0.96270186

00:36:06.485 --> 00:36:07.864 a little added face validity

NOTE Confidence: 0.96270186

00:36:07.925 --> 00:36:08.425 here,

NOTE Confidence: 0.8047381

00:36:09.000 --> 00:36:10.520 we had a, an amazing

NOTE Confidence: 0.8047381

00:36:10.520 --> 00:36:11.020 postdoc,

NOTE Confidence: 0.9706739

00:36:11.320 --> 00:36:12.460 Renata Cupertino,

NOTE Confidence: 0.97848225

00:36:13.000 --> 00:36:13.900 here at UVM,

NOTE Confidence: 0.997051

00:36:14.440 --> 00:36:15.560 and she was able to

NOTE Confidence: 0.997051

00:36:15.560 --> 00:36:16.940 relate these groups

NOTE Confidence: 0.9845395

00:36:17.239 --> 00:36:18.620 to genetic liability,

NOTE Confidence: 0.96474344

00:36:19.160 --> 00:36:20.760 for cannabis use disorder. She

NOTE Confidence: 0.96474344

00:36:20.760 --> 00:36:23.045 did something similar again using

NOTE Confidence: 0.96474344

00:36:23.045 --> 00:36:25.285 the polygenic risk score for

NOTE Confidence: 0.96474344

00:36:25.285 --> 00:36:25.785 lifetime

NOTE Confidence: 0.8778486

00:36:26.404 --> 00:36:27.464 cannabis use.

NOTE Confidence: 0.9294909

00:36:27.844 --> 00:36:28.805 We kind of saw a

NOTE Confidence: 0.9294909

00:36:28.805 --> 00:36:30.184 similar pattern here.

NOTE Confidence: 0.9593257

00:36:30.484 --> 00:36:32.244 Again, what almost looks like

NOTE Confidence: 0.9593257

00:36:32.244 --> 00:36:33.144 kind of this

NOTE Confidence: 0.89577913

00:36:33.605 --> 00:36:34.105 stepwise

NOTE Confidence: 0.72133005

00:36:35.125 --> 00:36:35.625 relationship.

NOTE Confidence: 0.9864948

00:36:36.005 --> 00:36:36.505 So

NOTE Confidence: 0.99528056

00:36:37.520 --> 00:36:39.380 the the adolescent initiators

NOTE Confidence: 0.9800672

00:36:40.080 --> 00:36:41.940 having a greater genetic liability

NOTE Confidence: 0.9800672

00:36:42.000 --> 00:36:43.839 for cannabis use disorder and

NOTE Confidence: 0.9800672

00:36:43.839 --> 00:36:45.839 lifetime cannabis use relative to

NOTE Confidence: 0.9800672

00:36:45.839 --> 00:36:47.460 the cannabis naive group.

NOTE Confidence: 0.95974886

00:36:51.305 --> 00:36:52.744 So leveraging all of the

NOTE Confidence: 0.95974886

00:36:52.744 --> 00:36:54.184 data, again, almost, I think,

NOTE Confidence: 0.95974886

00:36:54.184 --> 00:36:55.325 two thousand MRIs.

NOTE Confidence: 0.99243546

00:36:57.704 --> 00:36:58.585 This is what we saw

NOTE Confidence: 0.99243546

00:36:58.585 --> 00:37:00.344 for a a group by

NOTE Confidence: 0.99243546

00:37:00.344 --> 00:37:01.164 time interaction.

NOTE Confidence: 0.9967248

00:37:02.505 --> 00:37:03.944 We and this was kind

NOTE Confidence: 0.9967248

00:37:03.944 --> 00:37:05.270 of the pattern throughout,

NOTE Confidence: 0.99158764

00:37:06.130 --> 00:37:07.510 the significant regions.

NOTE Confidence: 0.9938227

00:37:08.210 --> 00:37:08.690 So,

NOTE Confidence: 0.84352696

00:37:09.010 --> 00:37:10.770 really, what we saw in

NOTE Confidence: 0.84352696

00:37:10.770 --> 00:37:12.469 it it it this interaction,

NOTE Confidence: 0.98913616

00:37:13.570 --> 00:37:15.030 seemed to be driven by

NOTE Confidence: 0.98913616

00:37:15.250 --> 00:37:16.469 this kind of accelerated

NOTE Confidence: 0.99853766

00:37:16.850 --> 00:37:17.350 thinning

NOTE Confidence: 0.99338746

00:37:17.875 --> 00:37:18.775 in the adolescent,

NOTE Confidence: 0.7933058

00:37:20.275 --> 00:37:20.775 initiators.

NOTE Confidence: 0.8717146

00:37:21.715 --> 00:37:23.475 And really, in these group

NOTE Confidence: 0.8717146

00:37:23.475 --> 00:37:24.455 level analyses,

NOTE Confidence: 0.99712944

00:37:25.235 --> 00:37:26.675 we were not really able

NOTE Confidence: 0.99712944

00:37:26.675 --> 00:37:27.175 to

NOTE Confidence: 0.69356763

00:37:27.795 --> 00:37:28.295 distinguish

NOTE Confidence: 0.99965024

00:37:28.675 --> 00:37:29.175 between

NOTE Confidence: 0.95843303

00:37:29.715 --> 00:37:31.635 the young adult initiators and

NOTE Confidence: 0.95843303

00:37:31.635 --> 00:37:33.250 the cannabis naive group. So

NOTE Confidence: 0.95843303

00:37:33.250 --> 00:37:34.070 kind of statistically

NOTE Confidence: 0.95036536

00:37:34.690 --> 00:37:35.910 across these regions,

NOTE Confidence: 0.9974411

00:37:36.210 --> 00:37:37.730 these groups were looking the

NOTE Confidence: 0.9974411

00:37:37.730 --> 00:37:39.330 same. It was really the

NOTE Confidence: 0.9974411

00:37:39.330 --> 00:37:39.830 adolescent

NOTE Confidence: 0.96921873

00:37:40.130 --> 00:37:40.630 initiators,

NOTE Confidence: 0.9703879

00:37:41.890 --> 00:37:43.170 that were were differing. And

NOTE Confidence: 0.9703879

00:37:43.170 --> 00:37:44.610 in particular, it was kind

NOTE Confidence: 0.9703879

00:37:44.610 --> 00:37:46.690 of this fourteen to nineteen

NOTE Confidence: 0.9703879

00:37:46.690 --> 00:37:47.670 window where,

NOTE Confidence: 0.98414975

00:37:48.174 --> 00:37:49.775 when they were initiating, they

NOTE Confidence: 0.98414975

00:37:49.775 --> 00:37:50.835 were showing this,

NOTE Confidence: 0.999616

00:37:51.934 --> 00:37:52.434 accelerated

NOTE Confidence: 0.99415463

00:37:52.895 --> 00:37:54.835 thinning in largely prefrontal

NOTE Confidence: 0.9924981

00:37:55.135 --> 00:37:55.635 areas.

NOTE Confidence: 0.96129096

00:37:56.815 --> 00:37:58.355 And, you know, because we

NOTE Confidence: 0.96129096

00:37:58.654 --> 00:38:00.114 had observed these

NOTE Confidence: 0.99942315

00:38:00.719 --> 00:38:01.219 differences

NOTE Confidence: 0.9949945

00:38:01.600 --> 00:38:03.380 with respect to genetic liability,

NOTE Confidence: 0.9496851

00:38:04.800 --> 00:38:06.000 we we also looked to

NOTE Confidence: 0.9496851

00:38:06.000 --> 00:38:07.940 see if if genetic risk

NOTE Confidence: 0.9995677

00:38:08.239 --> 00:38:08.739 was

NOTE Confidence: 0.9857753

00:38:09.200 --> 00:38:10.739 qualifying this pattern.

NOTE Confidence: 0.96816576

00:38:11.360 --> 00:38:12.880 And what we saw was

NOTE Confidence: 0.96816576

00:38:12.880 --> 00:38:14.000 that it it it was

NOTE Confidence: 0.96816576

00:38:14.000 --> 00:38:14.500 not.

NOTE Confidence: 0.95032907

00:38:15.234 --> 00:38:16.594 And we had tried this,

NOTE Confidence: 0.95032907

00:38:16.835 --> 00:38:17.815 with a number of

NOTE Confidence: 0.9497032

00:38:18.275 --> 00:38:19.895 of polygenic risk scores,

NOTE Confidence: 0.82441044

00:38:21.075 --> 00:38:21.895 and kind of

NOTE Confidence: 0.8034798

00:38:22.195 --> 00:38:23.415 across analysis.

NOTE Confidence: 0.9986548

00:38:25.075 --> 00:38:26.215 There was no evidence

NOTE Confidence: 0.9041125

00:38:26.594 --> 00:38:28.055 of genetic liability

NOTE Confidence: 0.9945422

00:38:28.994 --> 00:38:29.494 qualifying

NOTE Confidence: 0.9558668

00:38:30.460 --> 00:38:31.580 the the pattern I just

NOTE Confidence: 0.9558668

00:38:31.580 --> 00:38:32.080 described.

NOTE Confidence: 0.8750169

00:38:35.420 --> 00:38:36.239 And interestingly,

NOTE Confidence: 0.9300135

00:38:36.620 --> 00:38:37.500 it it may be also

NOTE Confidence: 0.9300135

00:38:37.500 --> 00:38:38.700 kind of dovetailing a little

NOTE Confidence: 0.9300135

00:38:38.700 --> 00:38:39.520 bit with,

NOTE Confidence: 0.9931035

00:38:40.060 --> 00:38:42.380 the the previous mediation model

NOTE Confidence: 0.9931035

00:38:42.380 --> 00:38:43.040 I showed,

NOTE Confidence: 0.97822225

00:38:44.265 --> 00:38:45.704 suggesting that some of this,

NOTE Confidence: 0.9841739

00:38:46.984 --> 00:38:48.984 thinning was relating to increased

NOTE Confidence: 0.9841739

00:38:48.984 --> 00:38:50.125 attentional impulsivity.

NOTE Confidence: 0.9983761

00:38:51.464 --> 00:38:53.244 What we saw here was

NOTE Confidence: 0.92293507

00:38:54.825 --> 00:38:56.184 change in cannabis use from

NOTE Confidence: 0.92293507

00:38:56.184 --> 00:38:57.325 fourteen to nineteen

NOTE Confidence: 0.963751

00:38:58.110 --> 00:38:59.570 relating to thinning,

NOTE Confidence: 0.99947983

00:39:00.350 --> 00:39:01.890 in the highlighted areas

NOTE Confidence: 0.67838347

00:39:02.430 --> 00:39:02.930 and,

NOTE Confidence: 0.99407935

00:39:03.950 --> 00:39:05.410 that relating to

NOTE Confidence: 0.8022606

00:39:06.270 --> 00:39:07.730 past month use,

NOTE Confidence: 0.99148536

00:39:08.590 --> 00:39:10.270 past month cannabis use at

NOTE Confidence: 0.99148536

00:39:10.270 --> 00:39:11.490 age twenty two.

NOTE Confidence: 0.9620752

00:39:12.305 --> 00:39:13.844 So we found evidence for

NOTE Confidence: 0.9620752

00:39:13.904 --> 00:39:16.244 partial mediation here. And interestingly,

NOTE Confidence: 0.9620752

00:39:16.464 --> 00:39:17.125 we saw

NOTE Confidence: 0.8695054

00:39:17.505 --> 00:39:19.424 this for a couple other

NOTE Confidence: 0.8695054

00:39:19.424 --> 00:39:19.924 substances,

NOTE Confidence: 0.77759576

00:39:20.704 --> 00:39:21.204 ecstasy

NOTE Confidence: 0.96473336

00:39:21.984 --> 00:39:22.884 and cocaine.

NOTE Confidence: 0.58753866

00:39:24.065 --> 00:39:24.565 So

NOTE Confidence: 0.72333664

00:39:24.944 --> 00:39:25.684 again, maybe,

NOTE Confidence: 0.9886911

00:39:26.190 --> 00:39:28.130 you know, lending some support

NOTE Confidence: 0.9886911

00:39:28.349 --> 00:39:29.969 to this idea that,

NOTE Confidence: 0.95639133

00:39:31.710 --> 00:39:34.030 that this accelerated thinning might

NOTE Confidence: 0.95639133

00:39:34.030 --> 00:39:35.730 be relating to,

NOTE Confidence: 0.994376

00:39:36.270 --> 00:39:37.489 aspects of impulsivity.

NOTE Confidence: 0.93582475

00:39:39.165 --> 00:39:40.445 And I think also there

NOTE Confidence: 0.93582475

00:39:40.445 --> 00:39:42.225 was a fairly recent paper,

NOTE Confidence: 0.99856263

00:39:42.925 --> 00:39:43.425 from

NOTE Confidence: 0.83532095

00:39:44.685 --> 00:39:46.065 Doctor. Heard's lab,

NOTE Confidence: 0.9973936

00:39:47.085 --> 00:39:48.145 which combined

NOTE Confidence: 0.9134938

00:39:48.605 --> 00:39:50.765 rodent in human data. And

NOTE Confidence: 0.9134938

00:39:50.765 --> 00:39:51.645 I think that there was

NOTE Confidence: 0.9134938

00:39:51.645 --> 00:39:53.799 a, you know, a similar

NOTE Confidence: 0.9134938

00:39:53.799 --> 00:39:54.299 sort

NOTE Confidence: 0.80121255

00:39:54.760 --> 00:39:55.660 of finding here,

NOTE Confidence: 0.966957

00:39:56.280 --> 00:39:57.900 so some potential convergence

NOTE Confidence: 0.8006002

00:39:58.839 --> 00:39:59.739 across labs.

NOTE Confidence: 0.94807017

00:40:01.319 --> 00:40:02.280 So at this point, you

NOTE Confidence: 0.94807017

00:40:02.280 --> 00:40:04.299 know, with the follow-up analyses,

NOTE Confidence: 0.94807017

00:40:04.440 --> 00:40:05.980 we really had not seen

NOTE Confidence: 0.94807017

00:40:06.200 --> 00:40:07.395 much evidence

NOTE Confidence: 0.89993876

00:40:08.015 --> 00:40:10.595 of the cannabis naive group

NOTE Confidence: 0.9438742

00:40:11.055 --> 00:40:12.275 looking any different,

NOTE Confidence: 0.83871245

00:40:13.855 --> 00:40:15.375 relatives to the young adult

NOTE Confidence: 0.83871245

00:40:15.375 --> 00:40:15.875 initiators.

NOTE Confidence: 0.95445156

00:40:17.295 --> 00:40:18.755 So, we decided

NOTE Confidence: 0.9386166

00:40:19.295 --> 00:40:20.355 to kind of replicate

NOTE Confidence: 0.9806341

00:40:22.260 --> 00:40:24.040 the analysis we did,

NOTE Confidence: 0.9713813

00:40:24.980 --> 00:40:26.500 from, you know, age fourteen

NOTE Confidence: 0.9713813

00:40:26.500 --> 00:40:27.239 to nineteen,

NOTE Confidence: 0.95474726

00:40:27.860 --> 00:40:29.700 the the kind of analysis

NOTE Confidence: 0.95474726

00:40:29.700 --> 00:40:30.900 and results that I started

NOTE Confidence: 0.95474726

00:40:30.900 --> 00:40:31.640 off with.

NOTE Confidence: 0.9631512

00:40:32.500 --> 00:40:33.300 So, you know, we can

NOTE Confidence: 0.9631512

00:40:33.300 --> 00:40:34.260 think of this as maybe

NOTE Confidence: 0.9631512

00:40:34.420 --> 00:40:35.540 so this is no longer

NOTE Confidence: 0.9631512

00:40:35.540 --> 00:40:36.820 kind of a a a

NOTE Confidence: 0.9631512

00:40:36.820 --> 00:40:38.475 group based analysis. Now we're

NOTE Confidence: 0.9631512

00:40:38.475 --> 00:40:39.775 we're kind of treating,

NOTE Confidence: 0.9969039

00:40:41.275 --> 00:40:42.255 cannabis use

NOTE Confidence: 0.9887349

00:40:42.635 --> 00:40:44.155 or that change in cannabis

NOTE Confidence: 0.9887349

00:40:44.155 --> 00:40:45.215 use as a continuous

NOTE Confidence: 0.89881337

00:40:45.675 --> 00:40:46.895 quantitative measure,

NOTE Confidence: 0.9698957

00:40:47.435 --> 00:40:48.635 and we're looking to see

NOTE Confidence: 0.9698957

00:40:48.635 --> 00:40:50.555 if that relates to brain

NOTE Confidence: 0.9698957

00:40:50.555 --> 00:40:51.055 change,

NOTE Confidence: 0.9972947

00:40:51.755 --> 00:40:52.255 from

NOTE Confidence: 0.9974996

00:40:52.730 --> 00:40:54.109 nineteen to twenty two.

NOTE Confidence: 0.99459386

00:40:54.809 --> 00:40:56.589 This is, the histogram

NOTE Confidence: 0.98679376

00:40:56.969 --> 00:40:59.289 of change in in cannabis

NOTE Confidence: 0.98679376

00:40:59.289 --> 00:41:01.049 use from nineteen to twenty

NOTE Confidence: 0.98679376

00:41:01.049 --> 00:41:01.549 two.

NOTE Confidence: 0.93437386

00:41:03.210 --> 00:41:03.930 And you can see a

NOTE Confidence: 0.93437386

00:41:03.930 --> 00:41:05.469 little more than happy group

NOTE Confidence: 0.99519384

00:41:06.005 --> 00:41:07.225 remains cannabis

NOTE Confidence: 0.95760345

00:41:07.605 --> 00:41:09.385 naive at age twenty two,

NOTE Confidence: 0.9435145

00:41:10.245 --> 00:41:11.605 but, a little less than

NOTE Confidence: 0.9435145

00:41:11.605 --> 00:41:12.965 half go on to,

NOTE Confidence: 0.9898689

00:41:13.445 --> 00:41:14.985 initiate cannabis use.

NOTE Confidence: 0.9746424

00:41:15.844 --> 00:41:16.344 And,

NOTE Confidence: 0.91648895

00:41:17.125 --> 00:41:18.405 and similar to what we

NOTE Confidence: 0.91648895

00:41:18.405 --> 00:41:18.905 saw

NOTE Confidence: 0.9807258

00:41:19.210 --> 00:41:20.810 with the fourteen to nineteen

NOTE Confidence: 0.9807258

00:41:20.810 --> 00:41:21.310 analyses,

NOTE Confidence: 0.9995569

00:41:22.730 --> 00:41:24.350 there was really no evidence

NOTE Confidence: 0.99501634

00:41:24.650 --> 00:41:25.790 of of

NOTE Confidence: 0.9406285

00:41:26.250 --> 00:41:28.750 age nineteen cortical thickness,

NOTE Confidence: 0.99936014

00:41:30.890 --> 00:41:31.390 predicting

NOTE Confidence: 0.9997131

00:41:31.850 --> 00:41:32.350 subsequent

NOTE Confidence: 0.98619425

00:41:32.730 --> 00:41:34.510 use or subsequent initiation.

NOTE Confidence: 0.9275235

00:41:35.005 --> 00:41:36.125 So we didn't see any

NOTE Confidence: 0.9275235

00:41:36.125 --> 00:41:37.265 significant associations

NOTE Confidence: 0.9820688

00:41:37.645 --> 00:41:39.085 there. But when we ran

NOTE Confidence: 0.9820688

00:41:39.085 --> 00:41:40.125 it as a linear mixed

NOTE Confidence: 0.9820688

00:41:40.125 --> 00:41:41.025 effects model,

NOTE Confidence: 0.93072915

00:41:42.045 --> 00:41:43.165 we saw that,

NOTE Confidence: 0.91112965

00:41:43.965 --> 00:41:45.185 age related change,

NOTE Confidence: 0.7863429

00:41:46.045 --> 00:41:47.425 was was qualified

NOTE Confidence: 0.99785477

00:41:47.885 --> 00:41:48.385 by

NOTE Confidence: 0.9928731

00:41:49.760 --> 00:41:51.520 the degree of cannabis use

NOTE Confidence: 0.9928731

00:41:51.520 --> 00:41:52.880 from nineteen to twenty two

NOTE Confidence: 0.9928731

00:41:52.880 --> 00:41:54.819 years of age. But interestingly,

NOTE Confidence: 0.9928731

00:41:55.040 --> 00:41:56.800 right, this is looking like

NOTE Confidence: 0.9928731

00:41:56.800 --> 00:41:58.719 a very different constellation of

NOTE Confidence: 0.9928731

00:41:58.719 --> 00:41:59.540 brain regions.

NOTE Confidence: 0.9971674

00:42:00.640 --> 00:42:01.599 In fact, you know, there's

NOTE Confidence: 0.9971674

00:42:01.599 --> 00:42:02.660 really no overlap

NOTE Confidence: 0.9988316

00:42:02.960 --> 00:42:04.819 relative to what we saw

NOTE Confidence: 0.99667627

00:42:05.475 --> 00:42:07.175 from fourteen to nineteen.

NOTE Confidence: 0.92804617

00:42:08.195 --> 00:42:08.835 And this

NOTE Confidence: 0.96975803

00:42:09.315 --> 00:42:10.115 so then we, you know,

NOTE Confidence: 0.96975803

00:42:10.115 --> 00:42:12.195 we one interesting kind of,

NOTE Confidence: 0.966446

00:42:13.315 --> 00:42:15.015 observation here is that

NOTE Confidence: 0.97154427

00:42:16.835 --> 00:42:18.215 this so this,

NOTE Confidence: 0.8217491

00:42:18.835 --> 00:42:19.335 figure,

NOTE Confidence: 0.9963794

00:42:19.900 --> 00:42:21.980 we're only limiting it to

NOTE Confidence: 0.9963794

00:42:21.980 --> 00:42:22.480 regions,

NOTE Confidence: 0.99827963

00:42:23.260 --> 00:42:24.560 where there is significant

NOTE Confidence: 0.99901897

00:42:25.100 --> 00:42:26.480 age related change

NOTE Confidence: 0.8837738

00:42:27.020 --> 00:42:28.080 in their respective

NOTE Confidence: 0.99811983

00:42:28.860 --> 00:42:30.000 developmental windows.

NOTE Confidence: 0.9269639

00:42:30.860 --> 00:42:32.719 So all this to say,

NOTE Confidence: 0.9914639

00:42:33.614 --> 00:42:35.215 there seems to be this

NOTE Confidence: 0.9914639

00:42:35.215 --> 00:42:35.715 this,

NOTE Confidence: 0.9732576

00:42:36.094 --> 00:42:36.895 you know, at least from

NOTE Confidence: 0.9732576

00:42:36.895 --> 00:42:38.655 our our our early work

NOTE Confidence: 0.9732576

00:42:38.655 --> 00:42:39.715 here that,

NOTE Confidence: 0.99678266

00:42:40.895 --> 00:42:41.395 cannabis

NOTE Confidence: 0.9832276

00:42:42.415 --> 00:42:43.775 seems you know, cannabis use

NOTE Confidence: 0.9832276

00:42:43.775 --> 00:42:45.295 seems to be associated with

NOTE Confidence: 0.9832276

00:42:45.295 --> 00:42:46.735 brain change in areas that

NOTE Confidence: 0.9832276

00:42:46.735 --> 00:42:48.114 are already kind of undergoing,

NOTE Confidence: 0.9991981

00:42:48.940 --> 00:42:50.300 the greatest degree of age

NOTE Confidence: 0.9991981

00:42:50.300 --> 00:42:51.360 related change

NOTE Confidence: 0.9542078

00:42:51.660 --> 00:42:54.140 during a particular developmental window,

NOTE Confidence: 0.9542078

00:42:54.140 --> 00:42:55.520 which is which is interesting.

NOTE Confidence: 0.9475841

00:42:57.020 --> 00:42:58.300 We all in this follow-up

NOTE Confidence: 0.9475841

00:42:58.300 --> 00:42:59.580 work, we also found some

NOTE Confidence: 0.9475841

00:42:59.580 --> 00:43:00.080 evidence,

NOTE Confidence: 0.94215035

00:43:00.380 --> 00:43:02.000 for some mediation effects.

NOTE Confidence: 0.99416727

00:43:03.385 --> 00:43:04.285 Some of the

NOTE Confidence: 0.91048926

00:43:04.585 --> 00:43:06.605 patterns of change we saw

NOTE Confidence: 0.91048926

00:43:06.825 --> 00:43:08.605 in in lateral temporal areas.

NOTE Confidence: 0.99430484

00:43:10.025 --> 00:43:10.844 Those changes

NOTE Confidence: 0.9942748

00:43:11.145 --> 00:43:11.645 mediated

NOTE Confidence: 0.9786949

00:43:12.184 --> 00:43:14.684 the association between cannabis use

NOTE Confidence: 0.79798734

00:43:15.119 --> 00:43:15.619 and,

NOTE Confidence: 0.90825516

00:43:16.160 --> 00:43:17.859 psychotic like experiences

NOTE Confidence: 0.7961531

00:43:18.640 --> 00:43:21.020 and in particular kind of

NOTE Confidence: 0.7961531

00:43:21.200 --> 00:43:21.700 positive

NOTE Confidence: 0.6080264

00:43:22.719 --> 00:43:23.219 symptoms.

NOTE Confidence: 0.9384754

00:43:24.000 --> 00:43:25.380 So, you know, more

NOTE Confidence: 0.73885727

00:43:25.759 --> 00:43:26.259 hallucination,

NOTE Confidence: 0.9044171

00:43:27.359 --> 00:43:27.859 delusion

NOTE Confidence: 0.60512465

00:43:28.640 --> 00:43:29.140 oriented

NOTE Confidence: 0.9715615

00:43:30.105 --> 00:43:30.605 experiences.

NOTE Confidence: 0.93297565

00:43:32.425 --> 00:43:33.625 So just kind of a

NOTE Confidence: 0.93297565

00:43:33.625 --> 00:43:34.205 a broad,

NOTE Confidence: 0.9908173

00:43:34.905 --> 00:43:36.525 set of conclusions here.

NOTE Confidence: 0.887964

00:43:38.665 --> 00:43:39.785 I think I've I think

NOTE Confidence: 0.887964

00:43:39.785 --> 00:43:41.545 I've probably already hit these,

NOTE Confidence: 0.887964

00:43:41.545 --> 00:43:41.945 but,

NOTE Confidence: 0.9904238

00:43:43.340 --> 00:43:44.700 this, you know, this idea

NOTE Confidence: 0.9904238

00:43:44.700 --> 00:43:46.560 that we can still see

NOTE Confidence: 0.984698

00:43:46.860 --> 00:43:48.219 what looks like this enduring

NOTE Confidence: 0.984698

00:43:48.219 --> 00:43:50.160 mark of adolescent cannabis use,

NOTE Confidence: 0.99946475

00:43:50.780 --> 00:43:51.520 in the

NOTE Confidence: 0.9590798

00:43:51.820 --> 00:43:53.040 young adult brain.

NOTE Confidence: 0.9556133

00:43:54.060 --> 00:43:55.360 We kind of see these,

NOTE Confidence: 0.9900312

00:43:56.485 --> 00:43:58.265 different patterns of longitudinal

NOTE Confidence: 0.99401695

00:43:58.565 --> 00:44:00.025 brain change relating

NOTE Confidence: 0.8995099

00:44:00.805 --> 00:44:01.945 to, adolescent

NOTE Confidence: 0.99942756

00:44:02.405 --> 00:44:02.905 initiation

NOTE Confidence: 0.9760884

00:44:03.445 --> 00:44:05.465 versus young adult initiation.

NOTE Confidence: 0.98227596

00:44:06.405 --> 00:44:06.905 And,

NOTE Confidence: 0.74810076

00:44:07.445 --> 00:44:07.945 and,

NOTE Confidence: 0.95526063

00:44:08.325 --> 00:44:09.225 and also

NOTE Confidence: 0.99934524

00:44:10.270 --> 00:44:12.430 these two different patterns that

NOTE Confidence: 0.99934524

00:44:12.430 --> 00:44:13.890 we're seeing, you know,

NOTE Confidence: 0.9845992

00:44:14.830 --> 00:44:16.430 relating to adolescent and young

NOTE Confidence: 0.9845992

00:44:16.430 --> 00:44:17.330 adult initiation,

NOTE Confidence: 0.9987471

00:44:17.790 --> 00:44:19.710 they're also relating differently to

NOTE Confidence: 0.9987471

00:44:19.710 --> 00:44:20.210 behavior.

NOTE Confidence: 0.90357447

00:44:23.515 --> 00:44:24.415 So, yeah,

NOTE Confidence: 0.9387995

00:44:25.114 --> 00:44:26.955 real quickly, just some ongoing

NOTE Confidence: 0.9387995

00:44:26.955 --> 00:44:28.635 work with, a, b, c,

NOTE Confidence: 0.9387995

00:44:28.635 --> 00:44:29.455 d, and imaging.

NOTE Confidence: 0.97371995

00:44:31.114 --> 00:44:33.535 So there, there's also longitudinal,

NOTE Confidence: 0.9781286

00:44:34.155 --> 00:44:36.015 diffusion imaging data available,

NOTE Confidence: 0.92609733

00:44:36.395 --> 00:44:38.470 in imaging that has recently

NOTE Confidence: 0.92609733

00:44:38.470 --> 00:44:39.450 been reprocessed

NOTE Confidence: 0.5078353

00:44:40.469 --> 00:44:41.210 in QC'd.

NOTE Confidence: 0.9780912

00:44:43.910 --> 00:44:44.950 Just a reminder of kind

NOTE Confidence: 0.9780912

00:44:44.950 --> 00:44:46.310 of this this map where

NOTE Confidence: 0.9780912

00:44:46.310 --> 00:44:48.489 we see these adolescent effects.

NOTE Confidence: 0.9091083

00:44:50.535 --> 00:44:52.214 And another person on my

NOTE Confidence: 0.9091083

00:44:52.214 --> 00:44:52.954 k mentorship

NOTE Confidence: 0.778071

00:44:53.255 --> 00:44:55.015 team, Nikos Makris at the

NOTE Confidence: 0.778071

00:44:55.015 --> 00:44:56.075 Martino Center,

NOTE Confidence: 0.9787019

00:44:56.775 --> 00:44:58.795 we've worked closely together.

NOTE Confidence: 0.9762842

00:44:59.815 --> 00:45:00.315 But

NOTE Confidence: 0.9813691

00:45:01.174 --> 00:45:02.295 in kind of looking at

NOTE Confidence: 0.9813691

00:45:02.295 --> 00:45:03.035 this map,

NOTE Confidence: 0.92183447

00:45:03.670 --> 00:45:04.790 there is kind of just

NOTE Confidence: 0.92183447

00:45:04.790 --> 00:45:05.290 this,

NOTE Confidence: 0.94157815

00:45:06.950 --> 00:45:08.410 qualitative piece where

NOTE Confidence: 0.99813354

00:45:09.510 --> 00:45:10.550 it starts to look a

NOTE Confidence: 0.99813354

00:45:10.550 --> 00:45:11.770 little bit like the connectional

NOTE Confidence: 0.98939264

00:45:12.150 --> 00:45:14.170 topography of the cingulum bundle.

NOTE Confidence: 0.9002311

00:45:14.870 --> 00:45:15.690 And so,

NOTE Confidence: 0.9957163

00:45:16.390 --> 00:45:17.590 what we did was we

NOTE Confidence: 0.9957163

00:45:17.590 --> 00:45:18.090 actually

NOTE Confidence: 0.94112015

00:45:18.545 --> 00:45:19.665 pulled in some of the

NOTE Confidence: 0.94112015

00:45:19.665 --> 00:45:21.425 peak regions from our cortical

NOTE Confidence: 0.94112015

00:45:21.425 --> 00:45:23.745 analyses. We use these as,

NOTE Confidence: 0.9982528

00:45:24.145 --> 00:45:24.645 seeds

NOTE Confidence: 0.9962156

00:45:25.185 --> 00:45:26.165 in exploratory

NOTE Confidence: 0.9824012

00:45:26.705 --> 00:45:27.205 tractography

NOTE Confidence: 0.79948246

00:45:27.505 --> 00:45:28.005 analyses,

NOTE Confidence: 0.9804667

00:45:28.945 --> 00:45:30.705 and we could very, you

NOTE Confidence: 0.9804667

00:45:30.705 --> 00:45:32.090 know, very reliably,

NOTE Confidence: 0.96627563

00:45:32.710 --> 00:45:34.230 get get the cingulum from

NOTE Confidence: 0.96627563

00:45:34.230 --> 00:45:34.710 these,

NOTE Confidence: 0.998029

00:45:35.190 --> 00:45:36.330 from from these

NOTE Confidence: 0.79751116

00:45:38.150 --> 00:45:38.730 peak areas.

NOTE Confidence: 0.95201516

00:45:39.670 --> 00:45:40.730 And so,

NOTE Confidence: 0.9784263

00:45:41.110 --> 00:45:42.410 we so then leveraging

NOTE Confidence: 0.951876

00:45:42.710 --> 00:45:43.750 kind of all of the

NOTE Confidence: 0.951876

00:45:43.750 --> 00:45:44.730 QC longitudinal

NOTE Confidence: 0.8432957

00:45:45.270 --> 00:45:46.330 diffusion data,

NOTE Confidence: 0.962465

00:45:47.244 --> 00:45:48.445 And this just shows the,

NOTE Confidence: 0.962465

00:45:48.445 --> 00:45:49.905 you know, the age distribution,

NOTE Confidence: 0.9238119

00:45:50.525 --> 00:45:51.265 of subjects,

NOTE Confidence: 0.8163709

00:45:51.805 --> 00:45:54.145 including the the, repeated scans

NOTE Confidence: 0.8163709

00:45:54.285 --> 00:45:55.625 and image. And,

NOTE Confidence: 0.8838026

00:45:56.445 --> 00:45:58.205 sorry, the the font's a

NOTE Confidence: 0.8838026

00:45:58.205 --> 00:45:59.185 little small.

NOTE Confidence: 0.87428796

00:46:01.790 --> 00:46:02.849 But interestingly,

NOTE Confidence: 0.9982654

00:46:03.390 --> 00:46:05.810 we find that there is,

NOTE Confidence: 0.95324534

00:46:06.349 --> 00:46:07.469 you know, it's, it's, it's

NOTE Confidence: 0.95324534

00:46:07.469 --> 00:46:09.330 kind of almost mirroring the,

NOTE Confidence: 0.95324534

00:46:09.630 --> 00:46:10.130 the,

NOTE Confidence: 0.9850882

00:46:11.070 --> 00:46:12.750 the thickness findings, the cortical

NOTE Confidence: 0.9850882

00:46:12.750 --> 00:46:13.730 thickness findings

NOTE Confidence: 0.94733715

00:46:14.255 --> 00:46:15.775 where we so, you know,

NOTE Confidence: 0.94733715

00:46:15.775 --> 00:46:16.895 typically during this,

NOTE Confidence: 0.977577

00:46:17.295 --> 00:46:18.895 developmental window, we're seeing kind

NOTE Confidence: 0.977577

00:46:18.895 --> 00:46:20.755 of significant age related,

NOTE Confidence: 0.9062786

00:46:21.775 --> 00:46:22.675 FA increases,

NOTE Confidence: 0.96425104

00:46:23.455 --> 00:46:24.995 across fiber tracts.

NOTE Confidence: 0.9596366

00:46:25.695 --> 00:46:26.195 Well,

NOTE Confidence: 0.97077835

00:46:26.710 --> 00:46:28.150 in in in the cingulum

NOTE Confidence: 0.97077835

00:46:28.150 --> 00:46:30.090 bundle, what we're seeing is,

NOTE Confidence: 0.9758725

00:46:30.469 --> 00:46:31.690 for those in, you know,

NOTE Confidence: 0.9180455

00:46:32.150 --> 00:46:33.530 essentially at higher levels,

NOTE Confidence: 0.9948927

00:46:33.989 --> 00:46:35.830 of adolescent cannabis use, we're

NOTE Confidence: 0.9948927

00:46:35.830 --> 00:46:36.969 seeing more attenuated

NOTE Confidence: 0.95759803

00:46:37.270 --> 00:46:38.570 age related increases,

NOTE Confidence: 0.9561756

00:46:39.910 --> 00:46:41.210 in fractional anisotropy,

NOTE Confidence: 0.9833646

00:46:42.015 --> 00:46:43.234 particularly in the cingulum.

NOTE Confidence: 0.95762324

00:46:43.614 --> 00:46:44.114 And,

NOTE Confidence: 0.96953964

00:46:44.815 --> 00:46:46.275 and what's even more interesting,

NOTE Confidence: 0.96953964

00:46:46.335 --> 00:46:47.454 right, is, you know, so

NOTE Confidence: 0.96953964

00:46:47.454 --> 00:46:48.594 we've become interested

NOTE Confidence: 0.9996598

00:46:48.895 --> 00:46:49.395 in

NOTE Confidence: 0.9995827

00:46:49.775 --> 00:46:51.234 the extent to which

NOTE Confidence: 0.7681065

00:46:52.255 --> 00:46:53.395 genetic liability

NOTE Confidence: 0.9988217

00:46:54.174 --> 00:46:55.555 may serve to qualify

NOTE Confidence: 0.9990008

00:46:56.015 --> 00:46:57.555 some of these cannabis

NOTE Confidence: 0.99813795

00:46:59.910 --> 00:47:00.410 related

NOTE Confidence: 0.72091496

00:47:00.870 --> 00:47:01.370 findings.

NOTE Confidence: 0.97019756

00:47:01.830 --> 00:47:03.350 And so it's really interesting.

NOTE Confidence: 0.97019756

00:47:03.350 --> 00:47:05.130 We're starting to see evidence

NOTE Confidence: 0.52300364

00:47:06.790 --> 00:47:07.290 across

NOTE Confidence: 0.8642293

00:47:09.030 --> 00:47:10.410 a couple different polygenic

NOTE Confidence: 0.8984988

00:47:11.430 --> 00:47:12.250 risk scores.

NOTE Confidence: 0.99349385

00:47:12.625 --> 00:47:13.905 We're starting to see evidence

NOTE Confidence: 0.99349385

00:47:13.905 --> 00:47:15.425 of kind of almost this

NOTE Confidence: 0.99349385

00:47:15.425 --> 00:47:16.705 three way interaction. It gets

NOTE Confidence: 0.99349385

00:47:16.705 --> 00:47:18.065 a little complicated because these

NOTE Confidence: 0.99349385

00:47:18.065 --> 00:47:19.205 are tensor products

NOTE Confidence: 0.915616

00:47:19.745 --> 00:47:20.645 in the context,

NOTE Confidence: 0.90016866

00:47:21.344 --> 00:47:21.745 of,

NOTE Confidence: 0.76731837

00:47:22.225 --> 00:47:22.965 GAM models.

NOTE Confidence: 0.9917306

00:47:24.305 --> 00:47:25.640 But we're starting to see

NOTE Confidence: 0.9917306

00:47:25.640 --> 00:47:27.480 evidence of what looks like,

NOTE Confidence: 0.9917306

00:47:27.560 --> 00:47:29.080 you know, essentially three way

NOTE Confidence: 0.9917306

00:47:29.080 --> 00:47:29.580 interactions

NOTE Confidence: 0.8467684

00:47:30.360 --> 00:47:30.680 where,

NOTE Confidence: 0.9936762

00:47:31.960 --> 00:47:32.940 we kind of see

NOTE Confidence: 0.99869174

00:47:33.320 --> 00:47:34.700 the greatest degree

NOTE Confidence: 0.7697027

00:47:35.719 --> 00:47:36.219 of,

NOTE Confidence: 0.6153987

00:47:36.840 --> 00:47:37.340 of,

NOTE Confidence: 0.9948583

00:47:38.585 --> 00:47:39.724 this kind of attenuated

NOTE Confidence: 0.99193877

00:47:40.265 --> 00:47:41.565 age related increase

NOTE Confidence: 0.9239832

00:47:43.144 --> 00:47:45.164 at the at higher levels

NOTE Confidence: 0.98887885

00:47:45.625 --> 00:47:47.565 of genetic risk for,

NOTE Confidence: 0.9317894

00:47:47.864 --> 00:47:49.325 for conditions like depression,

NOTE Confidence: 0.9987684

00:47:50.265 --> 00:47:50.765 and

NOTE Confidence: 0.96424496

00:47:51.480 --> 00:47:51.980 schizophrenia.

NOTE Confidence: 0.93961763

00:47:52.600 --> 00:47:54.040 Schizophrenia actually has a there's

NOTE Confidence: 0.93961763

00:47:54.040 --> 00:47:55.400 a very similar pattern here

NOTE Confidence: 0.93961763

00:47:55.400 --> 00:47:56.460 that we see. So,

NOTE Confidence: 0.927288

00:47:57.560 --> 00:47:59.239 still kind of we're still

NOTE Confidence: 0.927288

00:47:59.239 --> 00:48:00.680 piecing some of this this

NOTE Confidence: 0.927288

00:48:00.680 --> 00:48:02.120 work together, but, we think

NOTE Confidence: 0.927288

00:48:02.120 --> 00:48:03.400 that there's some very kind

NOTE Confidence: 0.927288

00:48:03.400 --> 00:48:05.525 of interesting signal here,

NOTE Confidence: 0.9804449

00:48:05.905 --> 00:48:06.945 that we're that we're still

NOTE Confidence: 0.9804449

00:48:06.945 --> 00:48:08.085 kind of working through.

NOTE Confidence: 0.9362082

00:48:08.704 --> 00:48:09.825 And then very I'll try

NOTE Confidence: 0.9362082

00:48:09.825 --> 00:48:11.025 to make this super quick.

NOTE Confidence: 0.9362082

00:48:11.265 --> 00:48:12.325 A, B, C, D,

NOTE Confidence: 0.9463789

00:48:13.105 --> 00:48:14.645 we have a a brilliant,

NOTE Confidence: 0.76092833

00:48:15.425 --> 00:48:15.925 graduate

NOTE Confidence: 0.87197477

00:48:16.305 --> 00:48:17.100 student here,

NOTE Confidence: 0.9042729

00:48:17.580 --> 00:48:19.020 again, through this t thirty

NOTE Confidence: 0.9042729

00:48:19.020 --> 00:48:19.840 two program,

NOTE Confidence: 0.910535

00:48:21.980 --> 00:48:23.040 Tony Barrows.

NOTE Confidence: 0.9284295

00:48:23.980 --> 00:48:24.480 And,

NOTE Confidence: 0.9672018

00:48:25.420 --> 00:48:27.120 he has really championed,

NOTE Confidence: 0.97166383

00:48:27.580 --> 00:48:29.920 this propensity score matching approach.

NOTE Confidence: 0.8782298

00:48:31.045 --> 00:48:32.325 And and really what we've

NOTE Confidence: 0.8782298

00:48:32.325 --> 00:48:34.165 done here is so in

NOTE Confidence: 0.8782298

00:48:34.165 --> 00:48:35.525 a b c d, we

NOTE Confidence: 0.8782298

00:48:35.525 --> 00:48:37.545 have looked or we've identified,

NOTE Confidence: 0.99950624

00:48:38.405 --> 00:48:38.905 cannabis

NOTE Confidence: 0.96371084

00:48:39.364 --> 00:48:39.864 initiators.

NOTE Confidence: 0.97910947

00:48:40.325 --> 00:48:41.525 So, you know, we've defined

NOTE Confidence: 0.97910947

00:48:41.525 --> 00:48:42.105 a particular

NOTE Confidence: 0.9685157

00:48:42.780 --> 00:48:44.380 window of initiation, and some

NOTE Confidence: 0.9685157

00:48:44.380 --> 00:48:45.260 of this is governed a

NOTE Confidence: 0.9685157

00:48:45.260 --> 00:48:46.400 bit by the numbers,

NOTE Confidence: 0.9369708

00:48:46.860 --> 00:48:47.340 just, you know

NOTE Confidence: 0.9895099

00:48:48.300 --> 00:48:49.100 so there's a little bit

NOTE Confidence: 0.9895099

00:48:49.100 --> 00:48:50.060 of a balancing act here,

NOTE Confidence: 0.9895099

00:48:50.060 --> 00:48:51.440 but we've defined

NOTE Confidence: 0.9866795

00:48:51.900 --> 00:48:53.340 a a kind of window

NOTE Confidence: 0.9866795

00:48:53.340 --> 00:48:54.080 of initiation.

NOTE Confidence: 0.9585985

00:48:54.380 --> 00:48:55.420 So here kind of year

NOTE Confidence: 0.9585985

00:48:55.420 --> 00:48:57.005 two to year six, we've

NOTE Confidence: 0.9585985

00:48:57.005 --> 00:48:58.525 also imposed kind of a

NOTE Confidence: 0.9585985

00:48:58.525 --> 00:49:00.864 threshold of what constitutes,

NOTE Confidence: 0.89274246

00:49:01.405 --> 00:49:02.364 you know, in our mind,

NOTE Confidence: 0.89274246

00:49:02.364 --> 00:49:03.185 maybe considerable

NOTE Confidence: 0.9052223

00:49:04.045 --> 00:49:05.025 cannabis use.

NOTE Confidence: 0.98215497

00:49:05.885 --> 00:49:07.725 Again, partially governed by the

NOTE Confidence: 0.98215497

00:49:07.725 --> 00:49:08.705 numbers here.

NOTE Confidence: 0.9719642

00:49:10.125 --> 00:49:10.785 And then,

NOTE Confidence: 0.9706711

00:49:11.210 --> 00:49:12.489 you know, the idea being

NOTE Confidence: 0.9706711

00:49:12.489 --> 00:49:13.469 that oops.

NOTE Confidence: 0.98328984

00:49:13.930 --> 00:49:15.469 The idea being that with,

NOTE Confidence: 0.9951194

00:49:16.009 --> 00:49:17.469 propensity score matching,

NOTE Confidence: 0.94793576

00:49:17.849 --> 00:49:19.609 we can really leverage the

NOTE Confidence: 0.94793576

00:49:19.609 --> 00:49:20.969 size of the a b

NOTE Confidence: 0.94793576

00:49:20.969 --> 00:49:21.869 c d study

NOTE Confidence: 0.7388756

00:49:22.329 --> 00:49:22.829 sample,

NOTE Confidence: 0.9370116

00:49:24.215 --> 00:49:25.515 and and we can

NOTE Confidence: 0.9992045

00:49:26.135 --> 00:49:28.715 find individuals that have similar,

NOTE Confidence: 0.9992045

00:49:28.935 --> 00:49:30.875 you know, propensity scores

NOTE Confidence: 0.9927669

00:49:31.495 --> 00:49:32.875 relative to the initiators.

NOTE Confidence: 0.98096997

00:49:33.415 --> 00:49:34.455 So kind of, you know,

NOTE Confidence: 0.98096997

00:49:34.455 --> 00:49:35.995 from a statistical standpoint,

NOTE Confidence: 0.7639159

00:49:37.410 --> 00:49:37.910 individuals

NOTE Confidence: 0.8834325

00:49:38.450 --> 00:49:38.950 that,

NOTE Confidence: 0.9970567

00:49:39.489 --> 00:49:39.989 statistically

NOTE Confidence: 0.8175416

00:49:40.530 --> 00:49:41.030 are,

NOTE Confidence: 0.99933374

00:49:42.210 --> 00:49:43.410 just as likely to go

NOTE Confidence: 0.99933374

00:49:43.410 --> 00:49:44.790 on to initiate

NOTE Confidence: 0.9988901

00:49:45.170 --> 00:49:47.030 based on a whole constellation

NOTE Confidence: 0.9312338

00:49:48.770 --> 00:49:50.745 of variables. So we can

NOTE Confidence: 0.9312338

00:49:51.065 --> 00:49:52.265 match kind of in this

NOTE Confidence: 0.9312338

00:49:52.265 --> 00:49:53.885 pre initiation phase,

NOTE Confidence: 0.9978566

00:49:54.985 --> 00:49:55.805 on psychopathology

NOTE Confidence: 0.99780554

00:49:56.265 --> 00:49:57.325 measures, demographics,

NOTE Confidence: 0.93237597

00:49:58.185 --> 00:50:00.745 substance use, you know, obviously

NOTE Confidence: 0.93237597

00:50:00.745 --> 00:50:02.505 not cannabis, but other aspects

NOTE Confidence: 0.93237597

00:50:02.505 --> 00:50:03.485 of cannabis use,

NOTE Confidence: 0.8689604

00:50:03.910 --> 00:50:04.650 BRAIN measures.

NOTE Confidence: 0.88878554

00:50:05.590 --> 00:50:07.430 And then during the actual

NOTE Confidence: 0.88878554

00:50:07.430 --> 00:50:09.050 window of window of initiation,

NOTE Confidence: 0.9640174

00:50:09.430 --> 00:50:10.550 we can still match on

NOTE Confidence: 0.9640174

00:50:10.550 --> 00:50:12.410 things like like co occurring,

NOTE Confidence: 0.9903847

00:50:13.430 --> 00:50:15.370 alcohol use, tobacco use.

NOTE Confidence: 0.9891424

00:50:16.390 --> 00:50:17.750 And then after we have

NOTE Confidence: 0.9891424

00:50:17.750 --> 00:50:19.305 done this this kind of

NOTE Confidence: 0.9891424

00:50:19.305 --> 00:50:20.165 elaborate matching,

NOTE Confidence: 0.9479113

00:50:20.705 --> 00:50:21.825 and I I won't bore

NOTE Confidence: 0.9479113

00:50:21.825 --> 00:50:23.025 you with the details. I

NOTE Confidence: 0.9479113

00:50:23.344 --> 00:50:24.065 you know, there are ways

NOTE Confidence: 0.9479113

00:50:24.065 --> 00:50:25.445 to ensure that you have

NOTE Confidence: 0.9479113

00:50:25.665 --> 00:50:26.165 adequate,

NOTE Confidence: 0.80526257

00:50:27.185 --> 00:50:27.685 matches,

NOTE Confidence: 0.98412

00:50:29.185 --> 00:50:29.985 and you do end up

NOTE Confidence: 0.98412

00:50:29.985 --> 00:50:30.945 losing a little bit in

NOTE Confidence: 0.98412

00:50:30.945 --> 00:50:31.985 the way of numbers because

NOTE Confidence: 0.98412

00:50:31.985 --> 00:50:32.485 sometimes

NOTE Confidence: 0.8425331

00:50:32.785 --> 00:50:33.510 even with a massive

NOTE Confidence: 0.96156204

00:50:37.670 --> 00:50:39.290 good match for a particular

NOTE Confidence: 0.96156204

00:50:39.430 --> 00:50:40.410 cannabis initiator.

NOTE Confidence: 0.96629626

00:50:40.870 --> 00:50:42.550 So, unfortunately, sometimes you're having

NOTE Confidence: 0.96629626

00:50:42.550 --> 00:50:43.210 to drop,

NOTE Confidence: 0.9845209

00:50:44.630 --> 00:50:45.770 cannabis initiators.

NOTE Confidence: 0.98824143

00:50:46.390 --> 00:50:48.605 But essentially, then you're able

NOTE Confidence: 0.98824143

00:50:48.605 --> 00:50:50.545 to to, run a

NOTE Confidence: 0.76767117

00:50:51.045 --> 00:50:51.545 a,

NOTE Confidence: 0.95371276

00:50:52.285 --> 00:50:54.045 linear mixed effects model. You

NOTE Confidence: 0.95371276

00:50:54.045 --> 00:50:55.165 can test for a group

NOTE Confidence: 0.95371276

00:50:55.165 --> 00:50:56.145 by time interaction.

NOTE Confidence: 0.98362577

00:50:56.844 --> 00:50:58.385 This is, you know, the,

NOTE Confidence: 0.9989577

00:50:58.765 --> 00:50:59.425 this is

NOTE Confidence: 0.9910682

00:51:00.039 --> 00:51:01.239 kind of the matching scheme

NOTE Confidence: 0.9910682

00:51:01.239 --> 00:51:01.739 here.

NOTE Confidence: 0.98139584

00:51:03.559 --> 00:51:04.680 I won't work through that

NOTE Confidence: 0.98139584

00:51:04.680 --> 00:51:05.799 right now, but it's not

NOTE Confidence: 0.98139584

00:51:05.799 --> 00:51:07.000 it's not shown here, but

NOTE Confidence: 0.98139584

00:51:07.000 --> 00:51:08.440 we also have matched you

NOTE Confidence: 0.98139584

00:51:08.440 --> 00:51:09.880 know, this is really, you

NOTE Confidence: 0.98139584

00:51:09.880 --> 00:51:11.400 know, throwing everything at this.

NOTE Confidence: 0.98139584

00:51:11.400 --> 00:51:13.160 We've also matched for pre

NOTE Confidence: 0.98139584

00:51:13.160 --> 00:51:13.660 initiation

NOTE Confidence: 0.9515641

00:51:13.960 --> 00:51:14.779 BRAIN structure.

NOTE Confidence: 0.86314833

00:51:15.665 --> 00:51:16.945 So even, you know, on

NOTE Confidence: 0.86314833

00:51:16.945 --> 00:51:18.625 an ROI level basis on

NOTE Confidence: 0.86314833

00:51:18.625 --> 00:51:19.125 global,

NOTE Confidence: 0.77355224

00:51:20.065 --> 00:51:22.385 measures like like total brain

NOTE Confidence: 0.77355224

00:51:22.385 --> 00:51:22.885 volume.

NOTE Confidence: 0.97443044

00:51:23.505 --> 00:51:25.344 So we've really done everything

NOTE Confidence: 0.97443044

00:51:25.344 --> 00:51:26.864 we can, right, to, like,

NOTE Confidence: 0.97443044

00:51:26.864 --> 00:51:27.364 ensure

NOTE Confidence: 0.99347055

00:51:27.984 --> 00:51:28.484 that,

NOTE Confidence: 0.8318824

00:51:29.070 --> 00:51:30.050 you know, these

NOTE Confidence: 0.81178725

00:51:30.350 --> 00:51:30.850 are,

NOTE Confidence: 0.8137143

00:51:31.469 --> 00:51:31.969 equivalent

NOTE Confidence: 0.7524581

00:51:33.070 --> 00:51:33.570 groups.

NOTE Confidence: 0.9153139

00:51:34.750 --> 00:51:35.469 You can see,

NOTE Confidence: 0.9998117

00:51:36.190 --> 00:51:36.690 that

NOTE Confidence: 0.9756942

00:51:37.390 --> 00:51:38.670 so just, you know, again,

NOTE Confidence: 0.9756942

00:51:38.670 --> 00:51:40.290 to remind you, so baseline

NOTE Confidence: 0.9756942

00:51:40.430 --> 00:51:41.925 to year two, no one

NOTE Confidence: 0.9756942

00:51:41.925 --> 00:51:42.825 has initiated.

NOTE Confidence: 0.98524475

00:51:43.364 --> 00:51:44.965 Then after year two, that's

NOTE Confidence: 0.98524475

00:51:44.965 --> 00:51:47.225 when the initiation window starts.

NOTE Confidence: 0.9475442

00:51:47.605 --> 00:51:48.885 And, you know, so this

NOTE Confidence: 0.9475442

00:51:48.885 --> 00:51:50.665 is these are, CBCL

NOTE Confidence: 0.98075795

00:51:52.085 --> 00:51:52.585 scales.

NOTE Confidence: 0.98377216

00:51:53.125 --> 00:51:54.165 So what we see here

NOTE Confidence: 0.98377216

00:51:54.165 --> 00:51:56.005 behaviorally is is kind of

NOTE Confidence: 0.98377216

00:51:56.005 --> 00:51:57.360 this what looks like,

NOTE Confidence: 0.96466684

00:51:58.080 --> 00:51:58.720 after, the,

NOTE Confidence: 0.99486136

00:52:00.000 --> 00:52:00.500 initiators

NOTE Confidence: 0.96949184

00:52:00.800 --> 00:52:02.739 initiate, we see these rises,

NOTE Confidence: 0.97018415

00:52:03.680 --> 00:52:04.980 in attention problems,

NOTE Confidence: 0.9712338

00:52:05.520 --> 00:52:07.680 externalizing and internalizing problems, and

NOTE Confidence: 0.9712338

00:52:07.680 --> 00:52:08.580 total problems.

NOTE Confidence: 0.9941202

00:52:09.360 --> 00:52:09.855 This

NOTE Confidence: 0.98028076

00:52:10.175 --> 00:52:11.775 dovetails with what we've already

NOTE Confidence: 0.98028076

00:52:11.775 --> 00:52:12.755 seen in Imogen.

NOTE Confidence: 0.98765707

00:52:13.935 --> 00:52:15.455 I didn't go over this

NOTE Confidence: 0.98765707

00:52:15.455 --> 00:52:17.695 earlier, but, we we've seen

NOTE Confidence: 0.98765707

00:52:17.695 --> 00:52:19.215 similar patterns. We're looking at

NOTE Confidence: 0.98765707

00:52:19.215 --> 00:52:21.135 adolescent use from fourteen to

NOTE Confidence: 0.98765707

00:52:21.135 --> 00:52:21.635 nineteen,

NOTE Confidence: 0.9996691

00:52:22.494 --> 00:52:23.070 how that

NOTE Confidence: 0.9620507

00:52:23.469 --> 00:52:23.969 moderates,

NOTE Confidence: 0.77811146

00:52:25.310 --> 00:52:25.810 psychopathology

NOTE Confidence: 0.9648481

00:52:26.270 --> 00:52:26.770 trajectories,

NOTE Confidence: 0.99812716

00:52:28.030 --> 00:52:29.330 into early adulthood.

NOTE Confidence: 0.9899054

00:52:31.790 --> 00:52:33.310 We're also this is still

NOTE Confidence: 0.9899054

00:52:33.469 --> 00:52:35.070 this is pretty new, but

NOTE Confidence: 0.9899054

00:52:35.070 --> 00:52:36.930 then looking to see emerging

NOTE Confidence: 0.9899054

00:52:36.989 --> 00:52:38.050 thickness differences.

NOTE Confidence: 0.98945564

00:52:38.675 --> 00:52:39.635 So we don't have anything

NOTE Confidence: 0.98945564

00:52:39.635 --> 00:52:42.195 that's surviving whole brain correction,

NOTE Confidence: 0.98945564

00:52:42.195 --> 00:52:43.474 but we are starting to

NOTE Confidence: 0.98945564

00:52:43.474 --> 00:52:44.455 kind of see

NOTE Confidence: 0.9254842

00:52:44.915 --> 00:52:45.395 these,

NOTE Confidence: 0.9546946

00:52:45.715 --> 00:52:47.155 you know, again, these are

NOTE Confidence: 0.9546946

00:52:47.155 --> 00:52:48.355 small samples. I don't know

NOTE Confidence: 0.9546946

00:52:48.355 --> 00:52:49.335 if you caught that,

NOTE Confidence: 0.8585973

00:52:49.875 --> 00:52:50.375 but

NOTE Confidence: 0.96161467

00:52:52.109 --> 00:52:52.989 a hundred and fifty nine

NOTE Confidence: 0.96161467

00:52:52.989 --> 00:52:54.029 and a hundred and fifty

NOTE Confidence: 0.96161467

00:52:54.029 --> 00:52:54.509 nine,

NOTE Confidence: 0.978878

00:52:55.309 --> 00:52:56.430 you know, these are small

NOTE Confidence: 0.978878

00:52:56.430 --> 00:52:56.930 samples,

NOTE Confidence: 0.9922545

00:52:57.710 --> 00:52:58.750 but we're already starting to

NOTE Confidence: 0.9922545

00:52:58.750 --> 00:53:00.109 maybe see little glimmers here

NOTE Confidence: 0.9922545

00:53:00.109 --> 00:53:01.569 of reduced thickness

NOTE Confidence: 0.97227424

00:53:02.430 --> 00:53:04.910 in, some prefrontal areas in

NOTE Confidence: 0.97227424

00:53:04.910 --> 00:53:05.569 the initiators.

NOTE Confidence: 0.9369383

00:53:08.405 --> 00:53:09.925 I realize I have gone

NOTE Confidence: 0.9369383

00:53:09.925 --> 00:53:10.665 way over.

NOTE Confidence: 0.9598091

00:53:11.045 --> 00:53:12.325 I don't maybe,

NOTE Confidence: 0.99384195

00:53:12.805 --> 00:53:14.085 would it be worth trying

NOTE Confidence: 0.99384195

00:53:14.085 --> 00:53:15.045 to do a few minutes

NOTE Confidence: 0.99384195

00:53:15.045 --> 00:53:15.545 of,

NOTE Confidence: 0.6541314

00:53:16.085 --> 00:53:16.405 of,

NOTE Confidence: 0.8645892

00:53:18.725 --> 00:53:19.785 questions? Or

NOTE Confidence: 0.93741184

00:53:20.930 --> 00:53:22.690 I'm sorry. Sure. Right? No.

NOTE Confidence: 0.93741184

00:53:22.690 --> 00:53:23.969 That's that's fine. I,

NOTE Confidence: 0.98203176

00:53:24.369 --> 00:53:25.969 this was really, really interesting.

NOTE Confidence: 0.98203176

00:53:25.969 --> 00:53:26.469 So

NOTE Confidence: 0.9800169

00:53:27.089 --> 00:53:28.289 maybe we can move to

NOTE Confidence: 0.9800169

00:53:28.289 --> 00:53:29.989 questions. Do people have questions?

NOTE Confidence: 0.98469687

00:53:36.045 --> 00:53:37.165 So if no one does

NOTE Confidence: 0.98469687

00:53:37.405 --> 00:53:38.285 I I do have one

NOTE Confidence: 0.98469687

00:53:38.285 --> 00:53:39.185 question, Matt.

NOTE Confidence: 0.9989922

00:53:39.485 --> 00:53:39.985 Yeah.

NOTE Confidence: 0.92647165

00:53:40.525 --> 00:53:41.565 Sorry. Should I should I

NOTE Confidence: 0.92647165

00:53:41.565 --> 00:53:42.925 stop sharing? Or I I

NOTE Confidence: 0.92647165

00:53:42.925 --> 00:53:44.065 can't, I've

NOTE Confidence: 0.9413632

00:53:44.605 --> 00:53:46.125 I can't see you. Oh,

NOTE Confidence: 0.9413632

00:53:46.125 --> 00:53:47.460 okay. Is it?

NOTE Confidence: 0.9399473

00:53:47.920 --> 00:53:49.360 Sure. You could stop. Oh,

NOTE Confidence: 0.9399473

00:53:49.360 --> 00:53:50.239 oh, I'm sorry. You know

NOTE Confidence: 0.9399473

00:53:50.239 --> 00:53:51.280 what? I found the window

NOTE Confidence: 0.9399473

00:53:51.280 --> 00:53:51.920 here. I got it. I

NOTE Confidence: 0.9399473

00:53:51.920 --> 00:53:52.820 got it. Sorry.

NOTE Confidence: 0.995572

00:53:53.200 --> 00:53:54.560 So, the question is,

NOTE Confidence: 0.9783195

00:53:56.560 --> 00:53:57.760 do you have any data

NOTE Confidence: 0.9783195

00:53:57.760 --> 00:53:59.700 that could speak to reversibility?

NOTE Confidence: 0.8861508

00:54:00.555 --> 00:54:02.234 As in in people who

NOTE Confidence: 0.8861508

00:54:02.234 --> 00:54:03.935 stop using in adolescents,

NOTE Confidence: 0.92932594

00:54:04.315 --> 00:54:05.994 who stop using cannabis? Is

NOTE Confidence: 0.92932594

00:54:05.994 --> 00:54:06.734 there any

NOTE Confidence: 0.99811304

00:54:07.194 --> 00:54:08.795 reversal of those changes that

NOTE Confidence: 0.99811304

00:54:08.795 --> 00:54:09.535 you observed?

NOTE Confidence: 0.91079223

00:54:09.915 --> 00:54:11.214 This will be an important,

NOTE Confidence: 0.7870772

00:54:13.160 --> 00:54:13.739 you know,

NOTE Confidence: 0.9380792

00:54:14.600 --> 00:54:16.600 important reason to convince young

NOTE Confidence: 0.9380792

00:54:16.600 --> 00:54:17.500 people about,

NOTE Confidence: 0.9990163

00:54:18.840 --> 00:54:20.220 it's not too late to

NOTE Confidence: 0.97152084

00:54:21.320 --> 00:54:23.020 to cut down or stop.

NOTE Confidence: 0.97152084

00:54:23.160 --> 00:54:24.280 Do you have any data

NOTE Confidence: 0.97152084

00:54:24.280 --> 00:54:26.114 to support that? So,

NOTE Confidence: 0.9669445

00:54:27.455 --> 00:54:28.735 it's what you know, this

NOTE Confidence: 0.9669445

00:54:28.735 --> 00:54:29.715 was a really,

NOTE Confidence: 0.99781495

00:54:30.335 --> 00:54:32.515 pressing question that we had,

NOTE Confidence: 0.97423583

00:54:32.895 --> 00:54:33.855 you know, when we were

NOTE Confidence: 0.97423583

00:54:33.855 --> 00:54:35.375 first getting that age twenty

NOTE Confidence: 0.97423583

00:54:35.375 --> 00:54:36.895 two data. That was actually

NOTE Confidence: 0.97423583

00:54:36.895 --> 00:54:38.015 one of the questions that

NOTE Confidence: 0.97423583

00:54:38.015 --> 00:54:39.775 we were really, really interested

NOTE Confidence: 0.97423583

00:54:39.775 --> 00:54:41.279 in. But I don't know.

NOTE Confidence: 0.9240788

00:54:41.980 --> 00:54:42.940 Not sure if I mentioned

NOTE Confidence: 0.9240788

00:54:42.940 --> 00:54:44.000 it or not. But,

NOTE Confidence: 0.9977377

00:54:45.579 --> 00:54:47.839 so in those adolescent initiators,

NOTE Confidence: 0.9844509

00:54:48.700 --> 00:54:49.819 there was I I I

NOTE Confidence: 0.9844509

00:54:49.819 --> 00:54:51.180 believe it was less than

NOTE Confidence: 0.9844509

00:54:51.180 --> 00:54:51.680 twenty.

NOTE Confidence: 0.9984977

00:54:52.779 --> 00:54:54.319 Less than twenty of them

NOTE Confidence: 0.9984977

00:54:54.380 --> 00:54:54.880 reported

NOTE Confidence: 0.9963372

00:54:55.535 --> 00:54:56.195 no use,

NOTE Confidence: 0.99241734

00:54:56.895 --> 00:54:58.195 in you know, afterwards.

NOTE Confidence: 0.99977344

00:54:58.895 --> 00:55:00.835 So the overwhelming majority

NOTE Confidence: 0.99909955

00:55:01.215 --> 00:55:02.995 of those adolescent initiators

NOTE Confidence: 0.9696576

00:55:03.775 --> 00:55:05.075 continued to use.

NOTE Confidence: 0.99547505

00:55:05.614 --> 00:55:06.575 So it was actually a

NOTE Confidence: 0.99547505

00:55:06.575 --> 00:55:08.430 real bummer. I mean, we,

NOTE Confidence: 0.99547505

00:55:08.750 --> 00:55:10.270 and I and maybe even

NOTE Confidence: 0.99547505

00:55:10.270 --> 00:55:11.810 a reviewer with that particular

NOTE Confidence: 0.99547505

00:55:11.869 --> 00:55:12.369 paper,

NOTE Confidence: 0.9764916

00:55:12.750 --> 00:55:14.030 had had asked this, but

NOTE Confidence: 0.9764916

00:55:14.030 --> 00:55:15.550 we, yeah, we were very

NOTE Confidence: 0.9764916

00:55:15.550 --> 00:55:16.590 bummed out by that. We

NOTE Confidence: 0.9764916

00:55:16.590 --> 00:55:17.790 were hoping that there would

NOTE Confidence: 0.9764916

00:55:17.790 --> 00:55:19.090 be more in the way,

NOTE Confidence: 0.9972685

00:55:19.550 --> 00:55:20.850 of, you know,

NOTE Confidence: 0.9942774

00:55:21.204 --> 00:55:22.565 people that had used early

NOTE Confidence: 0.9942774

00:55:22.565 --> 00:55:24.244 on and then stopped so

NOTE Confidence: 0.9942774

00:55:24.244 --> 00:55:25.444 that we could get at

NOTE Confidence: 0.9942774

00:55:25.444 --> 00:55:26.825 exactly that question.

NOTE Confidence: 0.9939034

00:55:27.444 --> 00:55:28.244 And I don't know. Maybe

NOTE Confidence: 0.9939034

00:55:28.244 --> 00:55:29.444 that speaks to just the

NOTE Confidence: 0.9939034

00:55:29.444 --> 00:55:29.944 phenomenology

NOTE Confidence: 0.9618181

00:55:30.244 --> 00:55:31.684 of this, you know, just

NOTE Confidence: 0.9618181

00:55:31.684 --> 00:55:33.444 overall. Like, it it's it's

NOTE Confidence: 0.9618181

00:55:33.444 --> 00:55:33.944 maybe,

NOTE Confidence: 0.9832757

00:55:36.329 --> 00:55:37.530 not that common where, you

NOTE Confidence: 0.9832757

00:55:37.530 --> 00:55:38.089 know, you,

NOTE Confidence: 0.9914878

00:55:38.489 --> 00:55:39.930 where you see this kind

NOTE Confidence: 0.9914878

00:55:39.930 --> 00:55:41.609 of very time limited use

NOTE Confidence: 0.9914878

00:55:41.609 --> 00:55:43.230 and and then nothing.

NOTE Confidence: 0.94705766

00:55:44.489 --> 00:55:45.450 So I guess we can

NOTE Confidence: 0.94705766

00:55:45.450 --> 00:55:46.890 see what what happens with

NOTE Confidence: 0.94705766

00:55:46.890 --> 00:55:48.030 a b c d.

NOTE Confidence: 0.7557298

00:55:49.094 --> 00:55:50.875 You know, there the the,

NOTE Confidence: 0.95090663

00:55:51.495 --> 00:55:51.995 use,

NOTE Confidence: 0.96954685

00:55:52.375 --> 00:55:53.735 is really picking up in

NOTE Confidence: 0.96954685

00:55:53.735 --> 00:55:54.715 in that sample.

NOTE Confidence: 0.97860086

00:55:55.255 --> 00:55:56.614 And so there there is

NOTE Confidence: 0.97860086

00:55:56.614 --> 00:55:58.055 the possibility that a b

NOTE Confidence: 0.97860086

00:55:58.055 --> 00:55:59.255 c d might be able

NOTE Confidence: 0.97860086

00:55:59.255 --> 00:56:00.549 to help with that. I

NOTE Confidence: 0.97860086

00:56:00.549 --> 00:56:01.750 do know there's also age

NOTE Confidence: 0.97860086

00:56:01.750 --> 00:56:03.109 twenty eight data that will

NOTE Confidence: 0.97860086

00:56:03.109 --> 00:56:03.930 become available,

NOTE Confidence: 0.8934315

00:56:05.269 --> 00:56:06.569 in imaging. So,

NOTE Confidence: 0.96749663

00:56:08.309 --> 00:56:09.670 I'm not sure when that

NOTE Confidence: 0.96749663

00:56:09.670 --> 00:56:10.170 is

NOTE Confidence: 0.99059564

00:56:10.789 --> 00:56:12.469 slated to be released, but

NOTE Confidence: 0.99059564

00:56:12.469 --> 00:56:13.769 that's another possibility.

NOTE Confidence: 0.98378515

00:56:15.094 --> 00:56:16.135 But we we're right there

NOTE Confidence: 0.98378515

00:56:16.135 --> 00:56:17.015 with you. We I mean,

NOTE Confidence: 0.98378515

00:56:17.015 --> 00:56:18.375 that was a very kind

NOTE Confidence: 0.98378515

00:56:18.375 --> 00:56:19.575 of pressing question for us

NOTE Confidence: 0.98378515

00:56:19.575 --> 00:56:20.075 too.

NOTE Confidence: 0.8826456

00:56:21.734 --> 00:56:22.934 The the the other related

NOTE Confidence: 0.8826456

00:56:22.934 --> 00:56:24.375 question I have is your,

NOTE Confidence: 0.9921216

00:56:25.094 --> 00:56:25.594 in

NOTE Confidence: 0.9720313

00:56:25.974 --> 00:56:27.994 in looking at dose response,

NOTE Confidence: 0.97536516

00:56:28.760 --> 00:56:30.440 the your measure of dose

NOTE Confidence: 0.97536516

00:56:30.440 --> 00:56:32.119 was frequency of use or

NOTE Confidence: 0.97536516

00:56:32.119 --> 00:56:33.239 number of times a person

NOTE Confidence: 0.97536516

00:56:33.239 --> 00:56:33.900 is used.

NOTE Confidence: 0.9520899

00:56:34.200 --> 00:56:35.719 Did you have any more

NOTE Confidence: 0.9520899

00:56:35.719 --> 00:56:36.520 finer grain,

NOTE Confidence: 0.9974259

00:56:37.960 --> 00:56:38.859 details about

NOTE Confidence: 0.99570984

00:56:39.319 --> 00:56:41.000 the potency of cannabis they

NOTE Confidence: 0.99570984

00:56:41.000 --> 00:56:41.500 used?

NOTE Confidence: 0.9728469

00:56:42.280 --> 00:56:43.644 You know, that is one

NOTE Confidence: 0.9728469

00:56:43.644 --> 00:56:45.005 of the limitations to all

NOTE Confidence: 0.9728469

00:56:45.005 --> 00:56:46.204 of the imaging work is

NOTE Confidence: 0.9728469

00:56:46.204 --> 00:56:47.644 that we really have focused

NOTE Confidence: 0.9728469

00:56:47.644 --> 00:56:49.744 heavily on this SBAD measure.

NOTE Confidence: 0.9780179

00:56:50.364 --> 00:56:51.805 And so it really does

NOTE Confidence: 0.9780179

00:56:51.805 --> 00:56:52.864 not get

NOTE Confidence: 0.999341

00:56:53.325 --> 00:56:55.424 more granular than those categories.

NOTE Confidence: 0.92320484

00:56:56.520 --> 00:56:57.480 A, b, c, d, there

NOTE Confidence: 0.92320484

00:56:57.480 --> 00:56:58.760 is more there's a better

NOTE Confidence: 0.92320484

00:56:58.760 --> 00:56:59.260 characterization,

NOTE Confidence: 0.9926601

00:57:00.440 --> 00:57:02.280 including another avenue that we're

NOTE Confidence: 0.9926601

00:57:02.280 --> 00:57:03.340 wanting to get into,

NOTE Confidence: 0.995423

00:57:04.120 --> 00:57:04.780 you know,

NOTE Confidence: 0.99417895

00:57:05.160 --> 00:57:06.060 different ways

NOTE Confidence: 0.8819748

00:57:07.239 --> 00:57:08.605 of using cannabis. So in

NOTE Confidence: 0.8819748

00:57:08.605 --> 00:57:09.905 particular, kind of,

NOTE Confidence: 0.9742787

00:57:10.765 --> 00:57:11.585 vaping versus

NOTE Confidence: 0.9988078

00:57:11.965 --> 00:57:12.465 edibles

NOTE Confidence: 0.9016582

00:57:13.245 --> 00:57:13.745 versus,

NOTE Confidence: 0.9596402

00:57:14.125 --> 00:57:15.185 you know, smoking,

NOTE Confidence: 0.95277494

00:57:16.125 --> 00:57:17.085 looking to you know, because

NOTE Confidence: 0.95277494

00:57:17.085 --> 00:57:18.525 there's this what another thing

NOTE Confidence: 0.95277494

00:57:18.525 --> 00:57:19.725 that really kind of bothers

NOTE Confidence: 0.95277494

00:57:19.725 --> 00:57:21.085 me is, are if there

NOTE Confidence: 0.95277494

00:57:21.245 --> 00:57:22.865 if this effect is real,

NOTE Confidence: 0.95277494

00:57:23.120 --> 00:57:24.080 is it really just the

NOTE Confidence: 0.95277494

00:57:24.080 --> 00:57:26.420 inhalation of, like, combustion byproducts?

NOTE Confidence: 0.95277494

00:57:26.640 --> 00:57:27.700 Is is this,

NOTE Confidence: 0.9690663

00:57:28.160 --> 00:57:29.360 you know so it would

NOTE Confidence: 0.9690663

00:57:29.360 --> 00:57:30.960 be really interesting, you know,

NOTE Confidence: 0.9690663

00:57:30.960 --> 00:57:32.320 and, again, if we have

NOTE Confidence: 0.9690663

00:57:32.320 --> 00:57:33.280 the numbers to do it,

NOTE Confidence: 0.9690663

00:57:33.280 --> 00:57:34.560 that's another avenue that we

NOTE Confidence: 0.9690663

00:57:34.560 --> 00:57:35.680 wanna get into, kind of

NOTE Confidence: 0.9690663

00:57:35.680 --> 00:57:36.740 looking at edibles

NOTE Confidence: 0.85319775

00:57:37.120 --> 00:57:37.620 versus,

NOTE Confidence: 0.98701936

00:57:38.545 --> 00:57:40.085 vaping versus smoking,

NOTE Confidence: 0.9819351

00:57:40.945 --> 00:57:42.145 to see the extent to

NOTE Confidence: 0.9819351

00:57:42.145 --> 00:57:43.285 which some of these findings

NOTE Confidence: 0.9819351

00:57:43.425 --> 00:57:44.405 may may hold.

NOTE Confidence: 0.97005093

00:57:45.105 --> 00:57:46.305 I I don't wanna hog

NOTE Confidence: 0.97005093

00:57:46.305 --> 00:57:47.425 the questions, but there are

NOTE Confidence: 0.97005093

00:57:47.425 --> 00:57:48.645 some in the chat.

NOTE Confidence: 0.9391329

00:57:50.980 --> 00:57:52.260 Oh, I didn't even see

NOTE Confidence: 0.9391329

00:57:52.260 --> 00:57:53.460 the I see that. I

NOTE Confidence: 0.9391329

00:57:53.460 --> 00:57:54.340 I can read them out

NOTE Confidence: 0.9391329

00:57:54.340 --> 00:57:55.620 to you, from one from

NOTE Confidence: 0.9391329

00:57:55.620 --> 00:57:57.620 Sushitra, Krishna, and Sarin. Thank

NOTE Confidence: 0.9391329

00:57:57.620 --> 00:57:58.580 you for your very nice

NOTE Confidence: 0.9391329

00:57:58.580 --> 00:57:59.080 presentation

NOTE Confidence: 0.92768824

00:57:59.380 --> 00:58:01.060 in the in imaging or

NOTE Confidence: 0.92768824

00:58:01.060 --> 00:58:02.020 a, b, c, d. Were

NOTE Confidence: 0.92768824

00:58:02.020 --> 00:58:03.060 you able to look at

NOTE Confidence: 0.92768824

00:58:03.060 --> 00:58:04.200 cognitive function

NOTE Confidence: 0.9935362

00:58:04.865 --> 00:58:06.885 correlates of the cortical thickness

NOTE Confidence: 0.9935362

00:58:06.944 --> 00:58:07.444 changes?

NOTE Confidence: 0.97969687

00:58:08.305 --> 00:58:09.684 Yeah. So in in imaging,

NOTE Confidence: 0.96579677

00:58:10.065 --> 00:58:11.744 I almost included some slides

NOTE Confidence: 0.96579677

00:58:11.744 --> 00:58:12.244 here.

NOTE Confidence: 0.82326907

00:58:13.345 --> 00:58:14.785 But yet we use the,

NOTE Confidence: 0.87826276

00:58:15.905 --> 00:58:17.444 the Cantab measure.

NOTE Confidence: 0.95942116

00:58:18.650 --> 00:58:20.010 And what we found again,

NOTE Confidence: 0.95942116

00:58:20.010 --> 00:58:21.050 this seems to kind of

NOTE Confidence: 0.95942116

00:58:21.050 --> 00:58:21.550 converge,

NOTE Confidence: 0.9447733

00:58:22.410 --> 00:58:23.530 with some of the reports

NOTE Confidence: 0.9447733

00:58:23.530 --> 00:58:25.230 out of Doctor. Heard's lab.

NOTE Confidence: 0.8790175

00:58:27.290 --> 00:58:28.650 But what we found what

NOTE Confidence: 0.8790175

00:58:28.650 --> 00:58:30.910 so it's the, the gambling

NOTE Confidence: 0.8790175

00:58:30.970 --> 00:58:31.470 task.

NOTE Confidence: 0.9968608

00:58:32.165 --> 00:58:33.365 And what we found was

NOTE Confidence: 0.9968608

00:58:33.365 --> 00:58:34.964 that the thinning was,

NOTE Confidence: 0.9876892

00:58:35.285 --> 00:58:36.325 in some of these,

NOTE Confidence: 0.95096135

00:58:37.045 --> 00:58:38.325 areas where we were seeing

NOTE Confidence: 0.95096135

00:58:38.325 --> 00:58:39.464 the adolescent effects.

NOTE Confidence: 0.99712193

00:58:40.325 --> 00:58:42.105 They were relating to,

NOTE Confidence: 0.9017849

00:58:42.964 --> 00:58:44.265 I think it's, like, overall

NOTE Confidence: 0.9017849

00:58:44.325 --> 00:58:45.385 proportion bet,

NOTE Confidence: 0.9931178

00:58:45.789 --> 00:58:46.690 and then also,

NOTE Confidence: 0.9938042

00:58:47.470 --> 00:58:49.069 whatever the measure of risk

NOTE Confidence: 0.9938042

00:58:49.069 --> 00:58:49.569 taking

NOTE Confidence: 0.927691

00:58:50.430 --> 00:58:51.170 is. And,

NOTE Confidence: 0.869073

00:58:51.630 --> 00:58:52.670 it was it was not

NOTE Confidence: 0.869073

00:58:52.670 --> 00:58:53.170 whoppingly

NOTE Confidence: 0.98120564

00:58:53.470 --> 00:58:54.910 significant, but it was it

NOTE Confidence: 0.98120564

00:58:54.910 --> 00:58:56.510 was nominally significant. We were

NOTE Confidence: 0.98120564

00:58:56.510 --> 00:58:57.329 seeing associations,

NOTE Confidence: 0.9596635

00:58:58.190 --> 00:58:59.549 with those kind of,

NOTE Confidence: 0.9536543

00:59:02.225 --> 00:59:03.365 risk taking measures,

NOTE Confidence: 0.84006554

00:59:04.225 --> 00:59:05.125 on the cantab

NOTE Confidence: 0.8175901

00:59:05.825 --> 00:59:06.325 with,

NOTE Confidence: 0.99543244

00:59:07.745 --> 00:59:09.265 with the thinning. Some of

NOTE Confidence: 0.99543244

00:59:09.265 --> 00:59:10.965 the more conventional measures,

NOTE Confidence: 0.9392653

00:59:11.345 --> 00:59:12.945 we were not seeing anything.

NOTE Confidence: 0.9392653

00:59:12.945 --> 00:59:13.985 Like, you know, some of

NOTE Confidence: 0.9392653

00:59:13.985 --> 00:59:14.485 the

NOTE Confidence: 0.8867574

00:59:16.260 --> 00:59:17.240 IQ measures,

NOTE Confidence: 0.72354597

00:59:18.500 --> 00:59:19.000 to

NOTE Confidence: 0.9098878

00:59:19.300 --> 00:59:20.600 the best of my recollection,

NOTE Confidence: 0.9098878

00:59:20.820 --> 00:59:21.860 we we did not see

NOTE Confidence: 0.9098878

00:59:21.860 --> 00:59:22.980 anything with that. It was

NOTE Confidence: 0.9098878

00:59:22.980 --> 00:59:24.580 mostly And and measures of

NOTE Confidence: 0.9098878

00:59:24.580 --> 00:59:26.600 attention and memory? No. Nothing?

NOTE Confidence: 0.95790213

00:59:27.060 --> 00:59:27.940 Well, so we had that

NOTE Confidence: 0.95790213

00:59:28.020 --> 00:59:29.400 you know, so those attentional

NOTE Confidence: 0.95790213

00:59:29.460 --> 00:59:30.680 impulsivity findings

NOTE Confidence: 0.98262024

00:59:31.205 --> 00:59:32.645 in ABCD, we're kind of

NOTE Confidence: 0.98262024

00:59:32.645 --> 00:59:34.005 seeing what looks like little,

NOTE Confidence: 0.98262024

00:59:34.005 --> 00:59:35.445 you know, some signal with

NOTE Confidence: 0.98262024

00:59:35.445 --> 00:59:37.705 respect to CBCL attention problems.

NOTE Confidence: 0.9851772

00:59:40.645 --> 00:59:41.925 So, you know, it certainly

NOTE Confidence: 0.9851772

00:59:41.925 --> 00:59:43.125 looks like there might be,

NOTE Confidence: 0.9851772

00:59:43.125 --> 00:59:44.819 you know, this association

NOTE Confidence: 0.9890629

00:59:45.440 --> 00:59:45.940 between,

NOTE Confidence: 0.9460472

00:59:47.040 --> 00:59:48.740 again, what was termed attentional

NOTE Confidence: 0.9460472

00:59:48.880 --> 00:59:50.960 impulsivity, but basically just the

NOTE Confidence: 0.9460472

00:59:50.960 --> 00:59:52.480 ability to stay on tasks,

NOTE Confidence: 0.9460472

00:59:52.480 --> 00:59:53.300 stay focused,

NOTE Confidence: 0.95611864

00:59:54.000 --> 00:59:55.855 in this accelerated thinning. And

NOTE Confidence: 0.95611864

00:59:55.855 --> 00:59:57.455 it was that mediation effect

NOTE Confidence: 0.95611864

00:59:57.455 --> 00:59:58.575 that I kinda very briefly

NOTE Confidence: 0.95611864

00:59:58.575 --> 01:00:00.495 outlined where, you know, the

NOTE Confidence: 0.95611864

01:00:00.495 --> 01:00:00.995 association

NOTE Confidence: 0.9993088

01:00:01.375 --> 01:00:03.395 between adolescent cannabis use

NOTE Confidence: 0.9872857

01:00:04.015 --> 01:00:05.855 and, these measures of attentional

NOTE Confidence: 0.9872857

01:00:05.855 --> 01:00:07.535 impulsivity, there was this partial

NOTE Confidence: 0.9872857

01:00:07.535 --> 01:00:09.715 mediation through the accelerated thinning.

NOTE Confidence: 0.95887923

01:00:10.640 --> 01:00:11.680 There are two more questions.

NOTE Confidence: 0.95887923

01:00:11.680 --> 01:00:13.440 One is why were why

NOTE Confidence: 0.95887923

01:00:13.440 --> 01:00:15.140 were the assessments at fourteen,

NOTE Confidence: 0.95887923

01:00:15.200 --> 01:00:17.040 nineteen, and twenty two? And

NOTE Confidence: 0.95887923

01:00:17.040 --> 01:00:18.640 this and the last question

NOTE Confidence: 0.95887923

01:00:18.640 --> 01:00:19.600 is any,

NOTE Confidence: 0.9268867

01:00:20.320 --> 01:00:21.140 sex differences?

NOTE Confidence: 0.9523055

01:00:22.695 --> 01:00:24.375 Great question. So we'd have

NOTE Confidence: 0.9523055

01:00:24.375 --> 01:00:26.295 to ask Hugh for the

NOTE Confidence: 0.9523055

01:00:26.375 --> 01:00:28.055 why fourteen, nineteen, and twenty

NOTE Confidence: 0.9523055

01:00:28.055 --> 01:00:29.015 two? That was just those

NOTE Confidence: 0.9523055

01:00:29.015 --> 01:00:30.375 were the waves, the the

NOTE Confidence: 0.9523055

01:00:30.375 --> 01:00:31.675 data collection waves.

NOTE Confidence: 0.98337775

01:00:33.095 --> 01:00:33.975 So I don't know if

NOTE Confidence: 0.98337775

01:00:33.975 --> 01:00:35.035 there was a more,

NOTE Confidence: 0.8975749

01:00:36.215 --> 01:00:38.190 specific rationale for those

NOTE Confidence: 0.89205796

01:00:39.230 --> 01:00:40.369 ages in particular,

NOTE Confidence: 0.98502445

01:00:41.390 --> 01:00:42.430 but that's kinda just what

NOTE Confidence: 0.98502445

01:00:42.430 --> 01:00:43.569 we had to work with.

NOTE Confidence: 0.98502445

01:00:43.710 --> 01:00:44.270 And then,

NOTE Confidence: 0.9974203

01:00:44.670 --> 01:00:46.530 so with respect to sex,

NOTE Confidence: 0.93407094

01:00:47.069 --> 01:00:47.810 we interestingly

NOTE Confidence: 0.9872546

01:00:48.190 --> 01:00:48.930 have not.

NOTE Confidence: 0.9522823

01:00:49.230 --> 01:00:50.690 So we, you know, we,

NOTE Confidence: 0.9628994

01:00:51.630 --> 01:00:52.865 you know, again, we ran

NOTE Confidence: 0.9628994

01:00:52.865 --> 01:00:54.484 a whole host of sensitivity

NOTE Confidence: 0.9488144

01:00:54.785 --> 01:00:55.285 analyses,

NOTE Confidence: 0.6741037

01:00:57.665 --> 01:00:58.244 in in basically,

NOTE Confidence: 0.80601776

01:00:58.704 --> 01:00:59.825 so all the analyses I

NOTE Confidence: 0.80601776

01:00:59.825 --> 01:01:00.724 kind of overviewed.

NOTE Confidence: 0.9378393

01:01:01.905 --> 01:01:02.625 We did a lot in

NOTE Confidence: 0.9378393

01:01:02.625 --> 01:01:03.345 each of kind of their

NOTE Confidence: 0.9378393

01:01:03.345 --> 01:01:04.405 respective publications,

NOTE Confidence: 0.99651265

01:01:05.330 --> 01:01:06.950 but we did not find

NOTE Confidence: 0.99651265

01:01:07.010 --> 01:01:08.470 evidence of of

NOTE Confidence: 0.998887

01:01:08.930 --> 01:01:09.430 sex

NOTE Confidence: 0.98345846

01:01:09.970 --> 01:01:10.470 qualifying,

NOTE Confidence: 0.94635236

01:01:11.250 --> 01:01:12.870 the patterns that I overview.

NOTE Confidence: 0.9867272

01:01:13.650 --> 01:01:14.150 So,

NOTE Confidence: 0.97308505

01:01:14.610 --> 01:01:15.650 but that's something that we

NOTE Confidence: 0.97308505

01:01:15.650 --> 01:01:17.330 definitely will continue to look

NOTE Confidence: 0.97308505

01:01:17.330 --> 01:01:18.850 at, in in a, b,

NOTE Confidence: 0.97308505

01:01:18.850 --> 01:01:19.510 c, d.

NOTE Confidence: 0.98021644

01:01:20.855 --> 01:01:22.454 So so, Matt, this is

NOTE Confidence: 0.98021644

01:01:22.454 --> 01:01:23.434 a great presentation.

NOTE Confidence: 0.9097128

01:01:24.615 --> 01:01:25.815 You certainly convinced,

NOTE Confidence: 0.935016

01:01:26.135 --> 01:01:27.095 me with some,

NOTE Confidence: 0.95485187

01:01:27.974 --> 01:01:28.855 with with the with the

NOTE Confidence: 0.95485187

01:01:28.855 --> 01:01:29.994 data that you presented.

NOTE Confidence: 0.9918373

01:01:30.855 --> 01:01:32.295 Just one last question for

NOTE Confidence: 0.9918373

01:01:32.295 --> 01:01:32.954 you is,

NOTE Confidence: 0.9643678

01:01:34.260 --> 01:01:35.460 when you present this data

NOTE Confidence: 0.9643678

01:01:35.460 --> 01:01:36.740 to the public, the general

NOTE Confidence: 0.9643678

01:01:36.740 --> 01:01:39.000 public, do this remain skeptical?

NOTE Confidence: 0.9990452

01:01:39.860 --> 01:01:40.760 Are they still

NOTE Confidence: 0.9922466

01:01:41.220 --> 01:01:42.920 raising questions about causality

NOTE Confidence: 0.48086613

01:01:43.300 --> 01:01:43.800 or,

NOTE Confidence: 0.9988603

01:01:44.900 --> 01:01:45.620 do you have a sense

NOTE Confidence: 0.9988603

01:01:45.620 --> 01:01:46.280 of that?

NOTE Confidence: 0.9269018

01:01:46.674 --> 01:01:48.595 Yeah. Well, I mean, so,

NOTE Confidence: 0.9269018

01:01:48.595 --> 01:01:49.894 you know, in in the

NOTE Confidence: 0.9269018

01:01:50.115 --> 01:01:50.934 kind of the

NOTE Confidence: 0.95575166

01:01:51.875 --> 01:01:52.755 I would say some of

NOTE Confidence: 0.95575166

01:01:52.755 --> 01:01:53.974 the, you know, the presentations

NOTE Confidence: 0.95575166

01:01:54.115 --> 01:01:55.075 I've done, I haven't done

NOTE Confidence: 0.95575166

01:01:55.075 --> 01:01:56.515 tons to, like, the just

NOTE Confidence: 0.95575166

01:01:56.515 --> 01:01:57.494 the the public.

NOTE Confidence: 0.9968186

01:01:58.194 --> 01:01:59.714 But I find that in

NOTE Confidence: 0.9968186

01:01:59.714 --> 01:02:01.329 person, you know, there doesn't

NOTE Confidence: 0.9968186

01:02:01.329 --> 01:02:02.210 seem to be a whole

NOTE Confidence: 0.9968186

01:02:02.210 --> 01:02:02.710 lot

NOTE Confidence: 0.9567838

01:02:03.010 --> 01:02:03.670 of skepticism.

NOTE Confidence: 0.92681557

01:02:05.089 --> 01:02:06.609 But I still am haunted

NOTE Confidence: 0.92681557

01:02:06.609 --> 01:02:07.349 by those,

NOTE Confidence: 0.93882185

01:02:07.970 --> 01:02:09.810 those social media con I

NOTE Confidence: 0.93882185

01:02:09.810 --> 01:02:11.089 mean, like, I just was

NOTE Confidence: 0.93882185

01:02:11.089 --> 01:02:12.690 blasted. And I really wasn't,

NOTE Confidence: 0.93882185

01:02:12.690 --> 01:02:14.070 I mean, I really wasn't

NOTE Confidence: 0.93882185

01:02:14.255 --> 01:02:15.615 expecting that. I really and,

NOTE Confidence: 0.93882185

01:02:15.615 --> 01:02:16.915 again, maybe, you know,

NOTE Confidence: 0.9617466

01:02:17.295 --> 01:02:18.655 now after a little bit

NOTE Confidence: 0.9617466

01:02:18.655 --> 01:02:19.775 of time in this space,

NOTE Confidence: 0.9617466

01:02:19.775 --> 01:02:21.055 I'm not as naive, but

NOTE Confidence: 0.9617466

01:02:21.055 --> 01:02:22.275 I I,

NOTE Confidence: 0.99647564

01:02:23.375 --> 01:02:24.915 I really felt that,

NOTE Confidence: 0.9516506

01:02:25.535 --> 01:02:26.335 with some of the, you

NOTE Confidence: 0.9516506

01:02:26.335 --> 01:02:27.375 know, some of the coverage

NOTE Confidence: 0.9516506

01:02:27.375 --> 01:02:28.495 and and a lot of

NOTE Confidence: 0.9516506

01:02:28.495 --> 01:02:29.970 the the kind of comments

NOTE Confidence: 0.9516506

01:02:29.970 --> 01:02:31.810 on social media. And and

NOTE Confidence: 0.9516506

01:02:31.810 --> 01:02:33.010 so there seemed to be

NOTE Confidence: 0.9516506

01:02:33.010 --> 01:02:34.390 a very healthy dose

NOTE Confidence: 0.997898

01:02:35.170 --> 01:02:35.990 of skepticism

NOTE Confidence: 0.9965495

01:02:36.450 --> 01:02:37.190 and criticism

NOTE Confidence: 0.8432029

01:02:38.770 --> 01:02:40.210 and people who just, I

NOTE Confidence: 0.8432029

01:02:40.210 --> 01:02:41.890 I think, no matter what

NOTE Confidence: 0.8432029

01:02:41.890 --> 01:02:42.550 you present,

NOTE Confidence: 0.9937262

01:02:43.005 --> 01:02:44.204 I think there are it's

NOTE Confidence: 0.9937262

01:02:44.204 --> 01:02:45.105 kind of almost,

NOTE Confidence: 0.9318222

01:02:45.484 --> 01:02:45.984 like,

NOTE Confidence: 0.9995578

01:02:46.285 --> 01:02:46.785 tribal

NOTE Confidence: 0.86697656

01:02:47.164 --> 01:02:48.224 where it's like,

NOTE Confidence: 0.99660987

01:02:49.085 --> 01:02:50.684 people are very committed to

NOTE Confidence: 0.99660987

01:02:50.684 --> 01:02:52.125 their side of the of

NOTE Confidence: 0.99660987

01:02:52.125 --> 01:02:52.625 the,

NOTE Confidence: 0.85723597

01:02:53.644 --> 01:02:54.944 the argument. But,

NOTE Confidence: 0.7302951

01:02:55.380 --> 01:02:55.880 yeah.

NOTE Confidence: 0.97254294

01:02:56.579 --> 01:02:57.859 Well, thank you very much,

NOTE Confidence: 0.97254294

01:02:57.859 --> 01:03:00.019 and, thanks everyone for attending.

NOTE Confidence: 0.97254294

01:03:00.019 --> 01:03:01.140 We will send out an

NOTE Confidence: 0.97254294

01:03:01.140 --> 01:03:02.420 announcement about the next,

NOTE Confidence: 0.93437433

01:03:03.460 --> 01:03:05.000 webinar for June.

NOTE Confidence: 0.99109906

01:03:05.503 --> 01:03:07.263 Thanks again, Matt. Really great

NOTE Confidence: 0.99109906

01:03:07.263 --> 01:03:07.763 presentation.

NOTE Confidence: 0.99836636

01:03:08.143 --> 01:03:09.183 Thanks so much for having

NOTE Confidence: 0.99836636

01:03:09.183 --> 01:03:09.903 me. It was it was

NOTE Confidence: 0.99836636

01:03:09.903 --> 01:03:11.523 a real pleasure. Thank you.