

WEBVTT

NOTE duration: "00:58:18.837"

NOTE Confidence: 0.8925069

00:00:02.480 --> 00:00:03.699 Good afternoon, everyone,

NOTE Confidence: 0.9546581

00:00:04.080 --> 00:00:05.620 and I'm Cyril D'Souza.

NOTE Confidence: 0.99153924

00:00:06.480 --> 00:00:08.260 It's my pleasure to,

NOTE Confidence: 0.97402906

00:00:08.960 --> 00:00:09.700 to introduce,

NOTE Confidence: 0.92632127

00:00:10.240 --> 00:00:11.219 Ryan Bogdan,

NOTE Confidence: 0.9403481

00:00:12.644 --> 00:00:14.485 who is the Dean's distinguished

NOTE Confidence: 0.9403481

00:00:14.485 --> 00:00:16.324 professor of psychological and brain

NOTE Confidence: 0.9403481

00:00:16.324 --> 00:00:17.545 sciences at WashU

NOTE Confidence: 0.93245506

00:00:17.925 --> 00:00:18.985 in Saint Louis.

NOTE Confidence: 0.9973944

00:00:19.925 --> 00:00:22.185 His research examines how genetic

NOTE Confidence: 0.9973944

00:00:22.244 --> 00:00:22.744 variation

NOTE Confidence: 0.99816155

00:00:23.125 --> 00:00:23.864 and environmental

NOTE Confidence: 0.9994574

00:00:24.404 --> 00:00:24.904 experience

NOTE Confidence: 0.999671

00:00:25.739 --> 00:00:27.520 contribute to individual differences

NOTE Confidence: 0.9819622

00:00:28.220 --> 00:00:29.360 in brain function,  
NOTE Confidence: 0.86763805

00:00:30.380 --> 00:00:31.600 behavior and psychopathology.  
NOTE Confidence: 0.97879636

00:00:32.940 --> 00:00:34.460 He's used a variety of  
NOTE Confidence: 0.97879636

00:00:34.460 --> 00:00:35.520 measures, including  
NOTE Confidence: 0.9851954

00:00:35.979 --> 00:00:36.479 molecular  
NOTE Confidence: 0.9397063

00:00:37.100 --> 00:00:38.080 genetics, GWAS,  
NOTE Confidence: 0.96819556

00:00:38.860 --> 00:00:39.360 MRI,  
NOTE Confidence: 0.96186817

00:00:40.460 --> 00:00:40.960 EEG,  
NOTE Confidence: 0.9781481

00:00:41.454 --> 00:00:42.195 twin studies,  
NOTE Confidence: 0.9954362

00:00:42.975 --> 00:00:44.114 behavioral assessments,  
NOTE Confidence: 0.91469425

00:00:45.135 --> 00:00:47.375 endocrine and information assays, and  
NOTE Confidence: 0.91469425

00:00:47.375 --> 00:00:48.675 self report in both  
NOTE Confidence: 0.99810535

00:00:49.135 --> 00:00:51.714 healthy individuals and clinical populations  
NOTE Confidence: 0.49838987

00:00:52.254 --> 00:00:52.754 across  
NOTE Confidence: 0.9830662

00:00:53.214 --> 00:00:53.954 the lifespan.  
NOTE Confidence: 0.98162776

00:00:54.970 --> 00:00:57.470 His, impactful work has has,

NOTE Confidence: 0.98162776  
00:00:57.770 --> 00:00:59.530 been recognized in many different  
NOTE Confidence: 0.98162776  
00:00:59.530 --> 00:01:01.290 ways. He was honored as  
NOTE Confidence: 0.98162776  
00:01:01.290 --> 00:01:01.950 a fellow  
NOTE Confidence: 0.9940737  
00:01:02.329 --> 00:01:03.950 of both the American Psychological  
NOTE Confidence: 0.9944009  
00:01:04.569 --> 00:01:05.790 Association, the APA,  
NOTE Confidence: 0.92632693  
00:01:06.250 --> 00:01:07.950 and the Association of Psychological  
NOTE Confidence: 0.99905187  
00:01:08.250 --> 00:01:08.750 American  
NOTE Confidence: 0.9835311  
00:01:09.875 --> 00:01:12.375 Association for Psychological Sciences, APS.  
NOTE Confidence: 0.97647953  
00:01:13.555 --> 00:01:14.995 His work has been published  
NOTE Confidence: 0.97647953  
00:01:14.995 --> 00:01:16.455 in many high  
NOTE Confidence: 0.9607846  
00:01:16.755 --> 00:01:19.155 impact journals and relevant to  
NOTE Confidence: 0.9607846  
00:01:19.155 --> 00:01:20.275 to the mission of our,  
NOTE Confidence: 0.9607846  
00:01:20.595 --> 00:01:21.715 the Yale Center for the  
NOTE Confidence: 0.9607846  
00:01:21.715 --> 00:01:23.415 Science of Cannabis and Cannabinoids.  
NOTE Confidence: 0.9712305  
00:01:24.270 --> 00:01:25.549 He's gonna touch upon a  
NOTE Confidence: 0.9712305

00:01:25.549 --> 00:01:27.170 really important topic about,  
NOTE Confidence: 0.9780622

00:01:28.750 --> 00:01:30.530 how exposure to cannabis,  
NOTE Confidence: 0.9936521

00:01:30.990 --> 00:01:32.450 during fetal brain development,  
NOTE Confidence: 0.9881911

00:01:33.310 --> 00:01:34.590 what impact it has on  
NOTE Confidence: 0.9881911

00:01:34.590 --> 00:01:35.090 behavior,  
NOTE Confidence: 0.96785545

00:01:35.950 --> 00:01:37.069 and and brain,  
NOTE Confidence: 0.9823226

00:01:37.549 --> 00:01:39.009 structure and function. So  
NOTE Confidence: 0.97579664

00:01:39.505 --> 00:01:40.944 that, I'd like to welcome  
NOTE Confidence: 0.97579664

00:01:40.944 --> 00:01:42.705 Ryan. Ryan, great that you  
NOTE Confidence: 0.97579664

00:01:42.705 --> 00:01:43.765 were able to make.  
NOTE Confidence: 0.9872515

00:01:44.865 --> 00:01:45.825 Yeah. Well, thank you all  
NOTE Confidence: 0.9872515

00:01:45.825 --> 00:01:46.705 so much for for having  
NOTE Confidence: 0.9872515

00:01:46.705 --> 00:01:47.585 me. Can everybody see the  
NOTE Confidence: 0.9872515

00:01:47.585 --> 00:01:48.325 screen okay?  
NOTE Confidence: 0.99798566

00:01:49.105 --> 00:01:51.025 Yes. Awesome. I'm gonna go  
NOTE Confidence: 0.99798566

00:01:51.025 --> 00:01:51.985 ahead and get started and

NOTE Confidence: 0.99798566  
00:01:51.985 --> 00:01:52.705 talk about,  
NOTE Confidence: 0.9680752  
00:01:53.025 --> 00:01:54.920 prenatal cannabis exposure and its  
NOTE Confidence: 0.9680752  
00:01:54.920 --> 00:01:56.219 association with some childhood  
NOTE Confidence: 0.98025054  
00:01:56.759 --> 00:01:58.360 outcomes in both some older  
NOTE Confidence: 0.98025054  
00:01:58.360 --> 00:01:59.399 samples as well as some  
NOTE Confidence: 0.98025054  
00:01:59.399 --> 00:02:01.579 neonatal and infant samples today.  
NOTE Confidence: 0.99236983  
00:02:02.119 --> 00:02:03.420 I don't have any disclosures,  
NOTE Confidence: 0.97997373  
00:02:04.039 --> 00:02:05.259 to report here.  
NOTE Confidence: 0.9828211  
00:02:06.515 --> 00:02:07.875 And just to outline things,  
NOTE Confidence: 0.9828211  
00:02:08.194 --> 00:02:09.315 I'm gonna focus on two  
NOTE Confidence: 0.9828211  
00:02:09.315 --> 00:02:10.455 studies today mostly.  
NOTE Confidence: 0.964405  
00:02:10.834 --> 00:02:12.595 One is the ABCD study  
NOTE Confidence: 0.964405  
00:02:12.595 --> 00:02:14.114 or adolescent brain and cognitive  
NOTE Confidence: 0.964405  
00:02:14.114 --> 00:02:15.395 development study. So this is  
NOTE Confidence: 0.964405  
00:02:15.395 --> 00:02:17.315 a large national effort that  
NOTE Confidence: 0.964405

00:02:17.315 --> 00:02:18.834 recruited nearly twelve thousand kids  
NOTE Confidence: 0.964405

00:02:18.834 --> 00:02:19.715 when they were age ten,  
NOTE Confidence: 0.964405

00:02:19.715 --> 00:02:20.595 and there's a bunch of  
NOTE Confidence: 0.964405

00:02:20.595 --> 00:02:22.860 retrospective reports of prenatal cannabis  
NOTE Confidence: 0.964405

00:02:22.860 --> 00:02:24.060 exposure. So we'll we'll be  
NOTE Confidence: 0.964405

00:02:24.060 --> 00:02:25.280 talking about that primarily.  
NOTE Confidence: 0.9387453

00:02:25.740 --> 00:02:26.700 But then we also have  
NOTE Confidence: 0.9387453

00:02:26.700 --> 00:02:27.900 a local study that we're  
NOTE Confidence: 0.9387453

00:02:27.900 --> 00:02:29.520 working on here called Cuddle,  
NOTE Confidence: 0.9387453

00:02:29.740 --> 00:02:31.180 or the cannabis use during  
NOTE Confidence: 0.9387453

00:02:31.180 --> 00:02:32.720 development in early life,  
NOTE Confidence: 0.9424354

00:02:33.180 --> 00:02:34.240 in which we recruited,  
NOTE Confidence: 0.88984674

00:02:34.780 --> 00:02:36.165 pregnant individuals during their first  
NOTE Confidence: 0.88984674

00:02:36.165 --> 00:02:37.205 trimester and then follow them  
NOTE Confidence: 0.88984674

00:02:37.205 --> 00:02:38.644 through their pregnancy. We're doing  
NOTE Confidence: 0.88984674

00:02:38.644 --> 00:02:40.325 neonatal brains images on them

NOTE Confidence: 0.88984674

00:02:40.325 --> 00:02:41.285 and then following them up

NOTE Confidence: 0.88984674

00:02:41.285 --> 00:02:42.185 through infancy,

NOTE Confidence: 0.8190409

00:02:42.885 --> 00:02:45.144 with behavior and neuroimaging. So,

NOTE Confidence: 0.971252

00:02:45.605 --> 00:02:47.044 we're just getting completed with

NOTE Confidence: 0.971252

00:02:47.044 --> 00:02:48.301 our six month data there.

NOTE Confidence: 0.971252

00:02:48.301 --> 00:02:49.834 So I don't really we

NOTE Confidence: 0.971252

00:02:49.834 --> 00:02:51.112 won't have behavioral data there

NOTE Confidence: 0.971252

00:02:51.112 --> 00:02:52.389 for you, but we have

NOTE Confidence: 0.971252

00:02:52.389 --> 00:02:53.922 done some stuff tracking, cannabis

NOTE Confidence: 0.971252

00:02:53.922 --> 00:02:55.200 use during pregnancy there. And

NOTE Confidence: 0.971252

00:02:55.200 --> 00:02:56.477 then lastly, I'll be ending

NOTE Confidence: 0.971252

00:02:56.477 --> 00:02:57.755 with some future directions about

NOTE Confidence: 0.971252

00:02:57.755 --> 00:02:59.032 some work we're doing with,

NOTE Confidence: 0.971252

00:02:59.288 --> 00:03:00.565 Cuddl as well as the

NOTE Confidence: 0.971252

00:03:00.565 --> 00:03:02.098 healthy, brain and child development

NOTE Confidence: 0.971252

00:03:02.098 --> 00:03:03.825 study, which is another national  
NOTE Confidence: 0.971252

00:03:03.825 --> 00:03:05.025 effort where we're recruiting,  
NOTE Confidence: 0.9251491

00:03:05.585 --> 00:03:07.345 over seven thousand pregnant individuals  
NOTE Confidence: 0.9251491

00:03:07.345 --> 00:03:08.485 and following their children.  
NOTE Confidence: 0.9776806

00:03:09.505 --> 00:03:10.305 So before I do get  
NOTE Confidence: 0.9776806

00:03:10.305 --> 00:03:11.185 started, I do wanna,  
NOTE Confidence: 0.95865136

00:03:11.905 --> 00:03:13.044 acknowledge some collaborators.  
NOTE Confidence: 0.9731561

00:03:13.345 --> 00:03:14.385 Been able to work with  
NOTE Confidence: 0.9731561

00:03:14.385 --> 00:03:15.585 some, wonderful folk who are  
NOTE Confidence: 0.9731561

00:03:15.585 --> 00:03:16.625 now starting their own labs  
NOTE Confidence: 0.9731561

00:03:16.625 --> 00:03:17.905 at at various places who  
NOTE Confidence: 0.9731561

00:03:17.905 --> 00:03:19.319 contributed and led much of  
NOTE Confidence: 0.9731561

00:03:19.319 --> 00:03:19.900 this work.  
NOTE Confidence: 0.9295913

00:03:20.440 --> 00:03:21.639 And then my colleague Cynthia  
NOTE Confidence: 0.9295913

00:03:21.639 --> 00:03:23.080 Rogers, who I work on  
NOTE Confidence: 0.9295913

00:03:23.080 --> 00:03:24.120 with the cuddle study as

NOTE Confidence: 0.9295913  
00:03:24.120 --> 00:03:25.019 well as HPCD,  
NOTE Confidence: 0.9170235  
00:03:25.639 --> 00:03:27.319 and, my collaborator and wife,  
NOTE Confidence: 0.9170235  
00:03:27.319 --> 00:03:28.220 Arpana Agrawal.  
NOTE Confidence: 0.9865444  
00:03:29.000 --> 00:03:29.959 And then I just wanna  
NOTE Confidence: 0.9865444  
00:03:29.959 --> 00:03:31.419 also acknowledge that we  
NOTE Confidence: 0.97504425  
00:03:32.315 --> 00:03:33.294 work a lot with ABCD  
NOTE Confidence: 0.97504425  
00:03:33.435 --> 00:03:34.315 study data. So this is  
NOTE Confidence: 0.97504425  
00:03:34.315 --> 00:03:35.435 that large national effort that  
NOTE Confidence: 0.97504425  
00:03:35.435 --> 00:03:36.155 a lot of people have  
NOTE Confidence: 0.97504425  
00:03:36.155 --> 00:03:36.795 put a lot of time  
NOTE Confidence: 0.97504425  
00:03:36.795 --> 00:03:37.915 and effort into collecting and  
NOTE Confidence: 0.97504425  
00:03:37.915 --> 00:03:38.415 and,  
NOTE Confidence: 0.9853892  
00:03:39.235 --> 00:03:41.435 and managing those data. And  
NOTE Confidence: 0.9853892  
00:03:41.435 --> 00:03:42.955 then, I'll also be talking  
NOTE Confidence: 0.9853892  
00:03:42.955 --> 00:03:43.995 at the end about this  
NOTE Confidence: 0.9853892

00:03:43.995 --> 00:03:45.519 HBCD project, which is kind  
NOTE Confidence: 0.9853892

00:03:45.519 --> 00:03:47.200 of inspired by ABCD, and  
NOTE Confidence: 0.9853892

00:03:47.200 --> 00:03:48.079 we're just trying to shift  
NOTE Confidence: 0.9853892

00:03:48.079 --> 00:03:49.040 the the clock back a  
NOTE Confidence: 0.9853892

00:03:49.040 --> 00:03:49.920 little bit further to look  
NOTE Confidence: 0.9853892

00:03:49.920 --> 00:03:50.980 at earlier development.  
NOTE Confidence: 0.99317074

00:03:52.079 --> 00:03:53.040 So as I'm sure you  
NOTE Confidence: 0.99317074

00:03:53.040 --> 00:03:54.500 all are quite well aware,  
NOTE Confidence: 0.99317074

00:03:54.560 --> 00:03:56.099 there have been drastic changes  
NOTE Confidence: 0.99317074

00:03:56.319 --> 00:03:56.799 in,  
NOTE Confidence: 0.96200895

00:03:57.120 --> 00:03:58.239 kind of the social cultural  
NOTE Confidence: 0.96200895

00:03:58.239 --> 00:03:58.739 permissiveness  
NOTE Confidence: 0.9781087

00:03:59.040 --> 00:04:01.065 and laws surrounding cannabis. Cannabis.  
NOTE Confidence: 0.9781087

00:04:01.225 --> 00:04:01.865 And this can be seen  
NOTE Confidence: 0.9781087

00:04:01.865 --> 00:04:03.565 even in perceived political liability,  
NOTE Confidence: 0.9781087

00:04:03.625 --> 00:04:04.985 right, in the the nineties

NOTE Confidence: 0.9781087  
00:04:04.985 --> 00:04:07.145 from, Clinton's original statements versus  
NOTE Confidence: 0.9781087  
00:04:07.145 --> 00:04:07.865 where it was seen as  
NOTE Confidence: 0.9781087  
00:04:07.865 --> 00:04:08.905 a liability to have tried  
NOTE Confidence: 0.9781087  
00:04:08.905 --> 00:04:09.405 cannabis,  
NOTE Confidence: 0.98242974  
00:04:09.945 --> 00:04:11.065 politically, but then it was  
NOTE Confidence: 0.98242974  
00:04:11.065 --> 00:04:12.425 seen as a liability to  
NOTE Confidence: 0.98242974  
00:04:12.425 --> 00:04:12.985 not have,  
NOTE Confidence: 0.91869134  
00:04:13.705 --> 00:04:14.685 used it later,  
NOTE Confidence: 0.9433434  
00:04:15.260 --> 00:04:16.860 in his political career. And  
NOTE Confidence: 0.9433434  
00:04:16.860 --> 00:04:18.060 there's no mere changes that  
NOTE Confidence: 0.9433434  
00:04:18.060 --> 00:04:19.180 you see in cannabis use.  
NOTE Confidence: 0.9433434  
00:04:19.180 --> 00:04:19.820 So what you're looking at  
NOTE Confidence: 0.9433434  
00:04:19.820 --> 00:04:20.800 over on the right  
NOTE Confidence: 0.9835576  
00:04:21.100 --> 00:04:22.220 are data from the monitoring  
NOTE Confidence: 0.9835576  
00:04:22.220 --> 00:04:23.820 the future study, which tracks,  
NOTE Confidence: 0.97406876

00:04:24.220 --> 00:04:25.759 adults as well as as,  
NOTE Confidence: 0.94059366

00:04:27.020 --> 00:04:27.520 children,  
NOTE Confidence: 0.96605897

00:04:28.139 --> 00:04:29.500 and high schoolers, for example,  
NOTE Confidence: 0.96605897

00:04:29.500 --> 00:04:31.005 looking at daily use. And,  
NOTE Confidence: 0.96605897

00:04:31.005 --> 00:04:32.285 essentially, over the past couple  
NOTE Confidence: 0.96605897

00:04:32.285 --> 00:04:33.165 of decades, there has been  
NOTE Confidence: 0.96605897

00:04:33.165 --> 00:04:34.145 a steady increase,  
NOTE Confidence: 0.96417135

00:04:34.525 --> 00:04:35.964 in cannabis use both from  
NOTE Confidence: 0.96417135

00:04:35.964 --> 00:04:37.324 a, you know, a past  
NOTE Confidence: 0.96417135

00:04:37.324 --> 00:04:38.365 kind of kind of year  
NOTE Confidence: 0.96417135

00:04:38.365 --> 00:04:40.125 use pattern that almost, you  
NOTE Confidence: 0.96417135

00:04:40.125 --> 00:04:41.884 know, approaches fifty percent in,  
NOTE Confidence: 0.96417135

00:04:42.205 --> 00:04:42.945 young adults.  
NOTE Confidence: 0.98942715

00:04:43.645 --> 00:04:44.845 And daily use has also  
NOTE Confidence: 0.98942715

00:04:44.845 --> 00:04:46.650 nearly doubled in this time,  
NOTE Confidence: 0.98942715

00:04:46.730 --> 00:04:47.690 about to seven and a

NOTE Confidence: 0.98942715

00:04:47.690 --> 00:04:48.750 half percent now.

NOTE Confidence: 0.9452081

00:04:49.370 --> 00:04:50.330 And this is seen across

NOTE Confidence: 0.9452081

00:04:50.330 --> 00:04:51.610 groups. We're actually seeing increases

NOTE Confidence: 0.9452081

00:04:51.610 --> 00:04:53.050 in cannabis use among older

NOTE Confidence: 0.9452081

00:04:53.050 --> 00:04:53.550 adults.

NOTE Confidence: 0.9994886

00:04:54.250 --> 00:04:55.370 And the other area we're

NOTE Confidence: 0.9994886

00:04:55.370 --> 00:04:56.830 seeing a lot is pregnant

NOTE Confidence: 0.9994886

00:04:56.890 --> 00:04:57.390 individuals.

NOTE Confidence: 0.984895

00:04:58.170 --> 00:04:59.290 So in the top right

NOTE Confidence: 0.984895

00:04:59.290 --> 00:04:59.770 is,

NOTE Confidence: 0.9621566

00:05:00.425 --> 00:05:01.725 data from Nora Volkow's

NOTE Confidence: 0.7915501

00:05:02.265 --> 00:05:04.045 group using the NASDA data

NOTE Confidence: 0.9324001

00:05:04.425 --> 00:05:05.945 that is showing that essentially

NOTE Confidence: 0.9324001

00:05:05.945 --> 00:05:06.765 in the last

NOTE Confidence: 0.9957906

00:05:07.305 --> 00:05:08.185 decade and a half up

NOTE Confidence: 0.9957906

00:05:08.185 --> 00:05:09.404 to twenty seventeen,  
NOTE Confidence: 0.99142987

00:05:10.985 --> 00:05:12.585 cannabis use among pregnant women  
NOTE Confidence: 0.99142987

00:05:12.585 --> 00:05:14.185 essentially doubled. It went from  
NOTE Confidence: 0.99142987

00:05:14.185 --> 00:05:15.145 about three and a half  
NOTE Confidence: 0.99142987

00:05:15.145 --> 00:05:16.285 percent to seven  
NOTE Confidence: 0.9726677

00:05:16.800 --> 00:05:17.360 percent. A lot of that  
NOTE Confidence: 0.9726677

00:05:17.360 --> 00:05:18.160 use has been in the  
NOTE Confidence: 0.9726677

00:05:18.160 --> 00:05:19.440 first trimester, but it has  
NOTE Confidence: 0.9726677

00:05:19.600 --> 00:05:20.800 it does seem to continue  
NOTE Confidence: 0.9726677

00:05:20.800 --> 00:05:22.640 throughout, and daily use has  
NOTE Confidence: 0.9726677

00:05:22.640 --> 00:05:24.560 also about doubled during this  
NOTE Confidence: 0.9726677

00:05:24.560 --> 00:05:25.700 time during pregnancy.  
NOTE Confidence: 0.98581094

00:05:26.320 --> 00:05:26.960 And there are a host  
NOTE Confidence: 0.98581094

00:05:26.960 --> 00:05:28.400 of reasons for this. A  
NOTE Confidence: 0.98581094

00:05:28.400 --> 00:05:29.920 lot of individuals report using  
NOTE Confidence: 0.98581094

00:05:29.920 --> 00:05:30.740 it for nausea,

NOTE Confidence: 0.95853543  
00:05:31.440 --> 00:05:32.695 especially during the the first  
NOTE Confidence: 0.95853543  
00:05:32.695 --> 00:05:33.815 trimester or using it for  
NOTE Confidence: 0.95853543  
00:05:33.815 --> 00:05:35.175 pain or discomfort or to,  
NOTE Confidence: 0.95853543  
00:05:35.175 --> 00:05:36.775 you know, for perceptions that  
NOTE Confidence: 0.95853543  
00:05:36.775 --> 00:05:37.275 it  
NOTE Confidence: 0.95584583  
00:05:37.735 --> 00:05:39.355 enhances their sleep as well.  
NOTE Confidence: 0.9501086  
00:05:41.495 --> 00:05:42.855 But, you know, the the  
NOTE Confidence: 0.9501086  
00:05:42.855 --> 00:05:44.135 outcomes associated with it are  
NOTE Confidence: 0.9501086  
00:05:44.135 --> 00:05:45.035 are really unclear.  
NOTE Confidence: 0.91912645  
00:05:45.335 --> 00:05:46.410 I do wanna emphasize that  
NOTE Confidence: 0.91912645  
00:05:46.410 --> 00:05:47.210 the there are some data  
NOTE Confidence: 0.91912645  
00:05:47.210 --> 00:05:48.250 to suggest these might also  
NOTE Confidence: 0.91912645  
00:05:48.250 --> 00:05:49.529 be underestimates. There are data  
NOTE Confidence: 0.91912645  
00:05:49.529 --> 00:05:50.810 from Kelly Young Wolf's group  
NOTE Confidence: 0.91912645  
00:05:50.810 --> 00:05:52.029 and then the Kaiser Permanente,  
NOTE Confidence: 0.84980506

00:05:52.730 --> 00:05:53.870 dataset in California  
NOTE Confidence: 0.9927845

00:05:54.330 --> 00:05:55.450 that is showing rates as  
NOTE Confidence: 0.9927845

00:05:55.450 --> 00:05:56.510 high as ten percent.  
NOTE Confidence: 0.9648894

00:05:57.130 --> 00:05:58.865 And then lastly, the HPCD  
NOTE Confidence: 0.9648894

00:05:59.005 --> 00:06:00.285 study, which is ongoing with  
NOTE Confidence: 0.9648894

00:06:00.285 --> 00:06:01.485 recruitment, and, again, we're we're  
NOTE Confidence: 0.9648894

00:06:01.485 --> 00:06:02.125 trying to get to, you  
NOTE Confidence: 0.9648894

00:06:02.125 --> 00:06:03.565 know, over seven thousand pregnant  
NOTE Confidence: 0.9648894

00:06:03.565 --> 00:06:04.065 individuals.  
NOTE Confidence: 0.9674146

00:06:04.445 --> 00:06:05.805 But in that dataset, we're,  
NOTE Confidence: 0.9674146

00:06:06.045 --> 00:06:07.805 preferentially recruiting for substance exposure,  
NOTE Confidence: 0.9674146

00:06:07.805 --> 00:06:08.845 so it's a little biased.  
NOTE Confidence: 0.9674146

00:06:08.845 --> 00:06:10.125 In particular, we're trying to  
NOTE Confidence: 0.9674146

00:06:10.125 --> 00:06:11.805 actively seek out opioid exposures  
NOTE Confidence: 0.9674146

00:06:11.805 --> 00:06:13.449 in this this group. But  
NOTE Confidence: 0.9674146

00:06:13.449 --> 00:06:14.830 in that dataset currently,

NOTE Confidence: 0.9819688

00:06:15.529 --> 00:06:16.889 the most used substance is

NOTE Confidence: 0.9819688

00:06:16.889 --> 00:06:17.930 cannabis, which you can see

NOTE Confidence: 0.9819688

00:06:17.930 --> 00:06:19.289 here in in red. And

NOTE Confidence: 0.9819688

00:06:19.289 --> 00:06:20.330 the other interesting thing to

NOTE Confidence: 0.9819688

00:06:20.330 --> 00:06:21.930 note is that, so these

NOTE Confidence: 0.9819688

00:06:21.930 --> 00:06:23.370 little dots here represent co

NOTE Confidence: 0.9819688

00:06:23.370 --> 00:06:25.389 occurring use or individual use,

NOTE Confidence: 0.9805449

00:06:25.714 --> 00:06:27.315 is oftentimes cannabis is being

NOTE Confidence: 0.9805449

00:06:27.315 --> 00:06:29.175 used in isolation during pregnancy.

NOTE Confidence: 0.9849691

00:06:29.875 --> 00:06:30.675 But I think it's quite

NOTE Confidence: 0.9849691

00:06:30.675 --> 00:06:31.955 striking that it's being used

NOTE Confidence: 0.9849691

00:06:31.955 --> 00:06:32.775 more frequently,

NOTE Confidence: 0.95506835

00:06:33.395 --> 00:06:34.135 than alcohol,

NOTE Confidence: 0.98157924

00:06:34.755 --> 00:06:35.955 now as well during during

NOTE Confidence: 0.98157924

00:06:35.955 --> 00:06:37.154 pregnancy in this in this

NOTE Confidence: 0.98157924

00:06:37.154 --> 00:06:37.654 dataset.

NOTE Confidence: 0.9595683

00:06:39.690 --> 00:06:40.490 There are a host of

NOTE Confidence: 0.9595683

00:06:40.490 --> 00:06:41.450 reasons for this, but there

NOTE Confidence: 0.9595683

00:06:41.450 --> 00:06:42.730 are these perceptions that is

NOTE Confidence: 0.9595683

00:06:42.730 --> 00:06:44.510 this natural substance and therefore

NOTE Confidence: 0.9595683

00:06:44.810 --> 00:06:46.010 safe, for example. So the

NOTE Confidence: 0.9595683

00:06:46.010 --> 00:06:46.890 New York Times had this

NOTE Confidence: 0.9595683

00:06:46.890 --> 00:06:48.570 really neat kind of, anecdotal

NOTE Confidence: 0.9595683

00:06:48.570 --> 00:06:49.529 reports where they talked to

NOTE Confidence: 0.9595683

00:06:49.529 --> 00:06:50.625 women, and they talked about

NOTE Confidence: 0.9595683

00:06:50.865 --> 00:06:52.065 how they're being very careful.

NOTE Confidence: 0.9595683

00:06:52.065 --> 00:06:53.505 They're only using marijuana. Right?

NOTE Confidence: 0.9595683

00:06:53.505 --> 00:06:54.625 They're not using alcohol. They're

NOTE Confidence: 0.9595683

00:06:54.625 --> 00:06:55.585 not using these other things,

NOTE Confidence: 0.9595683

00:06:55.585 --> 00:06:56.964 these perceptions of safety.

NOTE Confidence: 0.97564316

00:06:57.904 --> 00:06:59.505 But what is concerning is

NOTE Confidence: 0.97564316

00:06:59.505 --> 00:07:01.105 that we know remarkably little

NOTE Confidence: 0.97564316

00:07:01.105 --> 00:07:02.805 about cannabis use during pregnancy

NOTE Confidence: 0.97564316

00:07:02.865 --> 00:07:04.385 and its potential impact on

NOTE Confidence: 0.97564316

00:07:04.385 --> 00:07:05.760 offspring. And as I'm sure

NOTE Confidence: 0.97564316

00:07:05.760 --> 00:07:06.960 you all are well aware,

NOTE Confidence: 0.97564316

00:07:06.960 --> 00:07:08.639 given the endocannabinoid system's,

NOTE Confidence: 0.9764048

00:07:09.040 --> 00:07:11.760 involvement in early neurodevelopment, axonal

NOTE Confidence: 0.9764048

00:07:11.760 --> 00:07:13.600 guidance, neurogenesis, all of those

NOTE Confidence: 0.9764048

00:07:13.600 --> 00:07:15.139 sorts of things, synaptic plasticity,

NOTE Confidence: 0.9923398

00:07:16.160 --> 00:07:17.440 it could be a developmental

NOTE Confidence: 0.9923398

00:07:17.440 --> 00:07:18.820 period that could be associated

NOTE Confidence: 0.9923398

00:07:18.960 --> 00:07:20.740 with, increased risk.

NOTE Confidence: 0.977767

00:07:22.345 --> 00:07:23.145 The one thing that I

NOTE Confidence: 0.977767

00:07:23.145 --> 00:07:24.665 think is relatively clear in

NOTE Confidence: 0.977767

00:07:24.665 --> 00:07:26.264 the literature, at least according

NOTE Confidence: 0.977767

00:07:26.264 --> 00:07:27.324 to meta analyses,  
NOTE Confidence: 0.99041694

00:07:28.025 --> 00:07:29.945 is adverse associations with birth  
NOTE Confidence: 0.99041694

00:07:29.945 --> 00:07:31.165 outcomes among  
NOTE Confidence: 0.94783294

00:07:32.264 --> 00:07:33.885 pregnancies exposed to cannabis.  
NOTE Confidence: 0.9434854

00:07:34.760 --> 00:07:36.040 And this is across low  
NOTE Confidence: 0.9434854

00:07:36.040 --> 00:07:37.320 birth weight. You find generally  
NOTE Confidence: 0.9434854

00:07:37.320 --> 00:07:39.640 find, individuals exposed to cannabis  
NOTE Confidence: 0.9434854

00:07:39.640 --> 00:07:40.440 are at a lower birth  
NOTE Confidence: 0.9434854

00:07:40.440 --> 00:07:41.900 weight, are smaller for gestational  
NOTE Confidence: 0.9434854

00:07:41.960 --> 00:07:43.160 age, more likely to be  
NOTE Confidence: 0.9434854

00:07:43.160 --> 00:07:44.360 a preterm delivery or a  
NOTE Confidence: 0.9434854

00:07:44.360 --> 00:07:46.040 NICU admission across studies. So  
NOTE Confidence: 0.9434854

00:07:46.040 --> 00:07:47.000 that's what you see across  
NOTE Confidence: 0.9434854

00:07:47.000 --> 00:07:48.485 these. And it's about almost  
NOTE Confidence: 0.9434854

00:07:48.485 --> 00:07:50.405 a twofold odd ratio increase,  
NOTE Confidence: 0.9434854

00:07:50.405 --> 00:07:51.845 so almost doubling the likelihood

NOTE Confidence: 0.9434854

00:07:51.845 --> 00:07:52.665 of those things.

NOTE Confidence: 0.9498687

00:07:53.285 --> 00:07:53.925 The one thing I do

NOTE Confidence: 0.9498687

00:07:53.925 --> 00:07:54.725 wanna note is some of

NOTE Confidence: 0.9498687

00:07:54.725 --> 00:07:55.285 these studies,

NOTE Confidence: 0.96453905

00:07:56.085 --> 00:07:57.045 have not very been able

NOTE Confidence: 0.96453905

00:07:57.125 --> 00:07:57.845 some of them have been

NOTE Confidence: 0.96453905

00:07:57.845 --> 00:07:58.965 able to really well control

NOTE Confidence: 0.96453905

00:07:58.965 --> 00:08:00.265 for other substance exposures,

NOTE Confidence: 0.983331

00:08:00.570 --> 00:08:02.250 Others have have not been.

NOTE Confidence: 0.983331

00:08:02.250 --> 00:08:03.370 So the extent that some

NOTE Confidence: 0.983331

00:08:03.370 --> 00:08:04.750 of these data reflect,

NOTE Confidence: 0.984734

00:08:05.450 --> 00:08:06.890 you know, an aspect of

NOTE Confidence: 0.984734

00:08:06.890 --> 00:08:08.410 cannabis or possibly co occurring

NOTE Confidence: 0.984734

00:08:08.410 --> 00:08:09.550 environmental circumstances,

NOTE Confidence: 0.91394794

00:08:10.090 --> 00:08:11.850 nicotine and copamine positivity and

NOTE Confidence: 0.91394794

00:08:11.850 --> 00:08:12.510 the like,  
NOTE Confidence: 0.9818463

00:08:12.970 --> 00:08:14.250 does remain unclear. But this  
NOTE Confidence: 0.9818463

00:08:14.250 --> 00:08:15.130 is where the data are  
NOTE Confidence: 0.9818463

00:08:15.130 --> 00:08:16.190 probably the strongest,  
NOTE Confidence: 0.8627599

00:08:16.835 --> 00:08:18.055 with our national academy,  
NOTE Confidence: 0.97873574

00:08:18.595 --> 00:08:19.875 you know, kind of declaring  
NOTE Confidence: 0.97873574

00:08:19.875 --> 00:08:21.155 that there there was sufficient  
NOTE Confidence: 0.97873574

00:08:21.155 --> 00:08:23.074 evidence to, you know, proclaim  
NOTE Confidence: 0.97873574

00:08:23.074 --> 00:08:23.895 this negative,  
NOTE Confidence: 0.93038225

00:08:24.354 --> 00:08:25.655 association at least.  
NOTE Confidence: 0.9598092

00:08:26.675 --> 00:08:28.035 When you look at child  
NOTE Confidence: 0.9598092

00:08:28.035 --> 00:08:29.095 behavior in biology,  
NOTE Confidence: 0.9663431

00:08:30.160 --> 00:08:32.260 the findings are incredibly inconsistent,  
NOTE Confidence: 0.9740522

00:08:32.880 --> 00:08:34.320 and they've largely relied on  
NOTE Confidence: 0.9740522

00:08:34.320 --> 00:08:36.080 three main studies like the  
NOTE Confidence: 0.9740522

00:08:36.080 --> 00:08:38.080 Ottawa pregnancy study that have

NOTE Confidence: 0.9740522

00:08:38.080 --> 00:08:39.760 tracked very small samples of

NOTE Confidence: 0.9740522

00:08:39.760 --> 00:08:40.960 cases and controls. And a

NOTE Confidence: 0.9740522

00:08:40.960 --> 00:08:41.840 lot of those cases and

NOTE Confidence: 0.9740522

00:08:41.840 --> 00:08:42.820 controls are

NOTE Confidence: 0.99942565

00:08:43.445 --> 00:08:43.945 tremendously

NOTE Confidence: 0.98521215

00:08:44.325 --> 00:08:44.825 confounded,

NOTE Confidence: 0.92106915

00:08:45.845 --> 00:08:47.285 by, you know, factors such

NOTE Confidence: 0.92106915

00:08:47.285 --> 00:08:49.125 as socioeconomic status and and

NOTE Confidence: 0.92106915

00:08:49.125 --> 00:08:50.085 and the like where they're

NOTE Confidence: 0.92106915

00:08:50.085 --> 00:08:51.845 they're quite different. So and

NOTE Confidence: 0.92106915

00:08:51.845 --> 00:08:53.605 across these studies, there have

NOTE Confidence: 0.92106915

00:08:53.605 --> 00:08:55.445 been very inconsistent findings even

NOTE Confidence: 0.92106915

00:08:55.445 --> 00:08:56.885 within studies. Sometimes at a

NOTE Confidence: 0.92106915

00:08:56.885 --> 00:08:58.230 one h, they'll find, you

NOTE Confidence: 0.92106915

00:08:58.309 --> 00:08:59.750 know, cannabis use is associated

NOTE Confidence: 0.92106915

00:08:59.750 --> 00:09:01.029 with differences in cognition or  
NOTE Confidence: 0.92106915

00:09:01.029 --> 00:09:01.850 lower cognition.  
NOTE Confidence: 0.95876765

00:09:02.389 --> 00:09:03.589 In another study, they'll a  
NOTE Confidence: 0.95876765

00:09:03.589 --> 00:09:04.550 few years later, they'll find  
NOTE Confidence: 0.95876765

00:09:04.550 --> 00:09:05.750 no differences, and then they'll  
NOTE Confidence: 0.95876765

00:09:05.750 --> 00:09:07.670 also find increases in other  
NOTE Confidence: 0.95876765

00:09:07.670 --> 00:09:09.610 samples. So it's been incredibly  
NOTE Confidence: 0.95876765

00:09:09.670 --> 00:09:10.170 conflicting,  
NOTE Confidence: 0.9360739

00:09:11.144 --> 00:09:12.425 perhaps through these small samples  
NOTE Confidence: 0.9360739

00:09:12.425 --> 00:09:14.524 and and limited limited control.  
NOTE Confidence: 0.98338026

00:09:15.705 --> 00:09:16.665 So in the present set  
NOTE Confidence: 0.98338026

00:09:16.665 --> 00:09:18.105 of studies I wanna show  
NOTE Confidence: 0.98338026

00:09:18.184 --> 00:09:19.545 share with you all, we  
NOTE Confidence: 0.98338026

00:09:19.545 --> 00:09:20.584 were kind of interested in  
NOTE Confidence: 0.98338026

00:09:20.584 --> 00:09:22.425 just examining what prenatal cannabis  
NOTE Confidence: 0.98338026

00:09:22.425 --> 00:09:24.320 exposure is associated with with

NOTE Confidence: 0.98338026  
00:09:24.320 --> 00:09:26.240 regard to childhood behavior and  
NOTE Confidence: 0.98338026  
00:09:26.240 --> 00:09:27.540 biology in childhood.  
NOTE Confidence: 0.9446709  
00:09:29.120 --> 00:09:30.240 And apologies. I'm seeing some  
NOTE Confidence: 0.9446709  
00:09:30.240 --> 00:09:31.520 things in the chat. I'm  
NOTE Confidence: 0.9446709  
00:09:31.520 --> 00:09:33.120 terrible with tracking Zoom while,  
NOTE Confidence: 0.9631589  
00:09:33.600 --> 00:09:35.040 presenting. So if anybody wants  
NOTE Confidence: 0.9631589  
00:09:35.040 --> 00:09:36.105 to, you know, talk about  
NOTE Confidence: 0.9631589  
00:09:36.105 --> 00:09:37.704 anything, please just interrupt me,  
NOTE Confidence: 0.9631589  
00:09:37.865 --> 00:09:38.505 so I don't have to  
NOTE Confidence: 0.9631589  
00:09:38.505 --> 00:09:39.464 track the the chat as  
NOTE Confidence: 0.9631589  
00:09:39.464 --> 00:09:40.445 I'm trying to present.  
NOTE Confidence: 0.982547  
00:09:42.184 --> 00:09:42.785 So in the first study  
NOTE Confidence: 0.982547  
00:09:42.785 --> 00:09:43.545 I wanna share with you,  
NOTE Confidence: 0.982547  
00:09:43.545 --> 00:09:44.764 we relied on the ABCD  
NOTE Confidence: 0.982547  
00:09:44.824 --> 00:09:46.345 study. So this is a  
NOTE Confidence: 0.982547

00:09:46.345 --> 00:09:48.024 large generalist study that everybody  
NOTE Confidence: 0.982547

00:09:48.024 --> 00:09:49.065 has access to. So if  
NOTE Confidence: 0.982547

00:09:49.065 --> 00:09:50.605 you're interested in child development,  
NOTE Confidence: 0.9934665

00:09:50.910 --> 00:09:51.709 and you're not using this  
NOTE Confidence: 0.9934665

00:09:51.709 --> 00:09:52.829 dataset, I'd encourage you to  
NOTE Confidence: 0.9934665

00:09:52.829 --> 00:09:54.429 consider it. It's a study  
NOTE Confidence: 0.9934665

00:09:54.429 --> 00:09:56.029 of almost twelve thousand children  
NOTE Confidence: 0.9934665

00:09:56.029 --> 00:09:57.630 that were recruited around, the  
NOTE Confidence: 0.9934665

00:09:57.630 --> 00:09:59.089 ages of nine to ten,  
NOTE Confidence: 0.9611511

00:10:00.110 --> 00:10:01.329 kind of in the the,  
NOTE Confidence: 0.99492896

00:10:01.709 --> 00:10:02.209 like,  
NOTE Confidence: 0.91258514

00:10:02.510 --> 00:10:03.709 a twenty sixteen ish on  
NOTE Confidence: 0.91258514

00:10:03.709 --> 00:10:05.505 a twenty twenty ish. It  
NOTE Confidence: 0.91258514

00:10:05.505 --> 00:10:07.585 is relatively nationally representative or  
NOTE Confidence: 0.91258514

00:10:07.585 --> 00:10:08.545 as kind of as close  
NOTE Confidence: 0.91258514

00:10:08.545 --> 00:10:10.085 to that as studies get.

NOTE Confidence: 0.98813045

00:10:10.705 --> 00:10:11.745 There are twenty one, twenty

NOTE Confidence: 0.98813045

00:10:11.745 --> 00:10:12.865 two sites across the United

NOTE Confidence: 0.98813045

00:10:12.865 --> 00:10:13.825 States. One of the sites

NOTE Confidence: 0.98813045

00:10:13.825 --> 00:10:14.705 moved, which is why we

NOTE Confidence: 0.98813045

00:10:14.705 --> 00:10:16.145 often have to consider twenty

NOTE Confidence: 0.98813045

00:10:16.145 --> 00:10:16.885 two sites.

NOTE Confidence: 0.99009407

00:10:17.345 --> 00:10:18.145 But it also has a

NOTE Confidence: 0.99009407

00:10:18.145 --> 00:10:20.005 longitudinal family based component.

NOTE Confidence: 0.9758418

00:10:20.309 --> 00:10:21.110 So there are a couple

NOTE Confidence: 0.9758418

00:10:21.110 --> 00:10:22.890 of sites, that recruited monozygotic

NOTE Confidence: 0.9758418

00:10:23.029 --> 00:10:24.230 and dizygotic twins, and we're

NOTE Confidence: 0.9758418

00:10:24.230 --> 00:10:25.270 finally starting to get sufficient

NOTE Confidence: 0.9758418

00:10:25.270 --> 00:10:25.990 power to start to look

NOTE Confidence: 0.9758418

00:10:25.990 --> 00:10:27.290 at some of, that discordancy

NOTE Confidence: 0.9758418

00:10:27.510 --> 00:10:28.170 as well.

NOTE Confidence: 0.8853783

00:10:28.710 --> 00:10:29.990 But essentially every couple of  
NOTE Confidence: 0.8853783

00:10:29.990 --> 00:10:30.970 years, there's neuroimaging.  
NOTE Confidence: 0.9649133

00:10:31.590 --> 00:10:33.029 Every year, there's annual in  
NOTE Confidence: 0.9649133

00:10:33.029 --> 00:10:35.065 person behavioral assessment. And then  
NOTE Confidence: 0.9649133

00:10:35.065 --> 00:10:36.505 in midyear assessments, there's even  
NOTE Confidence: 0.9649133

00:10:36.505 --> 00:10:38.204 phone interviews looking at substance  
NOTE Confidence: 0.9649133

00:10:38.264 --> 00:10:39.464 use and the like. So  
NOTE Confidence: 0.9649133

00:10:39.464 --> 00:10:41.144 it's a really rich, relatively  
NOTE Confidence: 0.9649133

00:10:41.144 --> 00:10:42.684 deeply phenotyped dataset,  
NOTE Confidence: 0.98623055

00:10:43.625 --> 00:10:44.904 given its its size in  
NOTE Confidence: 0.98623055

00:10:44.904 --> 00:10:46.345 particular. And there are some  
NOTE Confidence: 0.98623055

00:10:46.345 --> 00:10:48.745 biomarkers and genetic data associated  
NOTE Confidence: 0.98623055

00:10:48.745 --> 00:10:49.804 with it as well.  
NOTE Confidence: 0.9788597

00:10:51.450 --> 00:10:52.330 So we were interested in  
NOTE Confidence: 0.9788597

00:10:52.330 --> 00:10:53.610 looking at prenatal cannabis exposure.  
NOTE Confidence: 0.9788597

00:10:53.610 --> 00:10:54.410 So this is just showing

NOTE Confidence: 0.9788597

00:10:54.410 --> 00:10:55.470 some of these differences.

NOTE Confidence: 0.9881176

00:10:55.929 --> 00:10:56.809 So this is all based

NOTE Confidence: 0.9881176

00:10:56.809 --> 00:10:58.490 on retrospective report of the

NOTE Confidence: 0.9881176

00:10:58.490 --> 00:11:00.089 caregiver, which is mostly the

NOTE Confidence: 0.9881176

00:11:00.089 --> 00:11:01.550 the mother that was reporting,

NOTE Confidence: 0.89379895

00:11:01.929 --> 00:11:03.450 although that there were about,

NOTE Confidence: 0.89379895

00:11:03.450 --> 00:11:04.455 like, eight percent of individuals

NOTE Confidence: 0.89379895

00:11:04.455 --> 00:11:04.684 who were not the the

NOTE Confidence: 0.89379895

00:11:04.684 --> 00:11:05.230 biological mother,

NOTE Confidence: 0.87499243

00:11:09.404 --> 00:11:10.444 person that's to the study,

NOTE Confidence: 0.87499243

00:11:10.444 --> 00:11:11.404 but they were asking about

NOTE Confidence: 0.87499243

00:11:11.404 --> 00:11:13.265 the maternal's use. And,

NOTE Confidence: 0.9535822

00:11:13.804 --> 00:11:15.565 this does kind of mirror,

NOTE Confidence: 0.9535822

00:11:15.565 --> 00:11:17.404 for the most part, national

NOTE Confidence: 0.9535822

00:11:17.404 --> 00:11:19.165 datasets with regard to, the

NOTE Confidence: 0.9535822

00:11:19.165 --> 00:11:20.605 percentage of use where about

NOTE Confidence: 0.9535822

00:11:20.605 --> 00:11:22.260 six percent of individuals are

NOTE Confidence: 0.9535822

00:11:22.260 --> 00:11:23.160 reporting use.

NOTE Confidence: 0.9741267

00:11:23.460 --> 00:11:24.340 And there are some, you

NOTE Confidence: 0.9741267

00:11:24.340 --> 00:11:26.340 know, important demographic differences across

NOTE Confidence: 0.9741267

00:11:26.340 --> 00:11:27.380 these groups. You find the

NOTE Confidence: 0.9741267

00:11:27.380 --> 00:11:28.760 greater proponents of

NOTE Confidence: 0.8840102

00:11:29.220 --> 00:11:30.920 black individuals, for example,

NOTE Confidence: 0.98672676

00:11:31.460 --> 00:11:32.600 reporting use.

NOTE Confidence: 0.9316635

00:11:33.059 --> 00:11:35.115 You also find lower, socio

NOTE Confidence: 0.9316635

00:11:35.274 --> 00:11:37.295 economic status associated with use.

NOTE Confidence: 0.9738979

00:11:37.834 --> 00:11:38.955 And we did divide this

NOTE Confidence: 0.9738979

00:11:38.955 --> 00:11:40.635 up into preknowledge exposure and

NOTE Confidence: 0.9738979

00:11:40.635 --> 00:11:41.774 postknowledge exposure.

NOTE Confidence: 0.99467903

00:11:42.154 --> 00:11:43.195 And some of the reason

NOTE Confidence: 0.99467903

00:11:43.195 --> 00:11:44.475 for that is that this

NOTE Confidence: 0.99467903

00:11:44.554 --> 00:11:45.054 actually,

NOTE Confidence: 0.9578151

00:11:45.434 --> 00:11:46.955 when women on average when

NOTE Confidence: 0.9578151

00:11:46.955 --> 00:11:47.670 they were pregnant in this

NOTE Confidence: 0.9578151

00:11:47.670 --> 00:11:49.370 study was around six weeks,

NOTE Confidence: 0.9578151

00:11:49.510 --> 00:11:50.550 which is right around the

NOTE Confidence: 0.9578151

00:11:50.550 --> 00:11:51.990 time according to, you know,

NOTE Confidence: 0.9578151

00:11:51.990 --> 00:11:53.510 nonhuman animal data that the

NOTE Confidence: 0.9578151

00:11:53.510 --> 00:11:55.110 endocannabinoid receptors in the brain

NOTE Confidence: 0.9578151

00:11:55.110 --> 00:11:56.809 developed. So we were hypothesizing

NOTE Confidence: 0.9578151

00:11:56.870 --> 00:11:57.830 that that would be the

NOTE Confidence: 0.9578151

00:11:57.830 --> 00:11:59.130 only way that we mechanistically

NOTE Confidence: 0.9578151

00:11:59.429 --> 00:12:01.030 see this. Although, as I'm

NOTE Confidence: 0.9578151

00:12:01.030 --> 00:12:02.490 sure you're also well aware,

NOTE Confidence: 0.9578151

00:12:02.705 --> 00:12:03.205 endocannabinoids

NOTE Confidence: 0.97181183

00:12:03.585 --> 00:12:04.385 play a huge role in

NOTE Confidence: 0.97181183

00:12:04.385 --> 00:12:06.065 the intrauterine environment and particularly

NOTE Confidence: 0.97181183

00:12:06.065 --> 00:12:07.345 with the placenta. So I

NOTE Confidence: 0.97181183

00:12:07.345 --> 00:12:08.545 don't wanna be minimizing that.

NOTE Confidence: 0.97181183

00:12:08.545 --> 00:12:09.345 I think there could also

NOTE Confidence: 0.97181183

00:12:09.345 --> 00:12:10.625 be very, you know, indirect

NOTE Confidence: 0.97181183

00:12:10.625 --> 00:12:12.225 pathways as well. But in

NOTE Confidence: 0.97181183

00:12:12.225 --> 00:12:13.265 our analysis I'm gonna present

NOTE Confidence: 0.97181183

00:12:13.265 --> 00:12:14.304 to you today, we covariate

NOTE Confidence: 0.97181183

00:12:14.304 --> 00:12:15.265 for things like birth weights

NOTE Confidence: 0.97181183

00:12:15.265 --> 00:12:16.065 and the like to try

NOTE Confidence: 0.97181183

00:12:16.065 --> 00:12:17.540 to account for those, you

NOTE Confidence: 0.97181183

00:12:17.540 --> 00:12:19.300 know, other possible mechanisms. But,

NOTE Confidence: 0.97181183

00:12:19.460 --> 00:12:20.500 I think they are very

NOTE Confidence: 0.97181183

00:12:20.500 --> 00:12:21.540 interesting ones as well that

NOTE Confidence: 0.97181183

00:12:21.540 --> 00:12:22.580 we're we're pursuing in some

NOTE Confidence: 0.97181183

00:12:22.580 --> 00:12:23.480 future work.

NOTE Confidence: 0.9938959  
00:12:24.980 --> 00:12:25.940 So one other thing that  
NOTE Confidence: 0.9938959  
00:12:25.940 --> 00:12:27.160 I think is is really  
NOTE Confidence: 0.9938959  
00:12:27.300 --> 00:12:28.660 key about this study is  
NOTE Confidence: 0.9938959  
00:12:28.660 --> 00:12:29.620 that we do have a  
NOTE Confidence: 0.9938959  
00:12:29.620 --> 00:12:31.245 host of other measures. So  
NOTE Confidence: 0.9938959  
00:12:31.245 --> 00:12:32.525 unlike these other, you know,  
NOTE Confidence: 0.9938959  
00:12:32.525 --> 00:12:33.025 epidemiological  
NOTE Confidence: 0.98057544  
00:12:33.565 --> 00:12:34.845 associative studies that have been  
NOTE Confidence: 0.98057544  
00:12:34.845 --> 00:12:36.925 conducted, we can perhaps really  
NOTE Confidence: 0.98057544  
00:12:36.925 --> 00:12:38.225 well account for confounds.  
NOTE Confidence: 0.98953557  
00:12:38.605 --> 00:12:39.325 And I think this is  
NOTE Confidence: 0.98953557  
00:12:39.325 --> 00:12:40.285 one of my favorite studies.  
NOTE Confidence: 0.98953557  
00:12:40.285 --> 00:12:41.245 It's an older study, but  
NOTE Confidence: 0.98953557  
00:12:41.245 --> 00:12:42.385 I think it nicely exemplifies  
NOTE Confidence: 0.98953557  
00:12:42.445 --> 00:12:43.425 why this is important.  
NOTE Confidence: 0.9863693

00:12:43.800 --> 00:12:44.840 This is a study using  
NOTE Confidence: 0.9863693

00:12:44.840 --> 00:12:45.500 some European,  
NOTE Confidence: 0.923656

00:12:45.960 --> 00:12:46.779 health data,  
NOTE Confidence: 0.90458786

00:12:47.240 --> 00:12:48.520 and essentially what they're looking  
NOTE Confidence: 0.90458786

00:12:48.520 --> 00:12:49.720 at is smoking during pregnancy.  
NOTE Confidence: 0.90458786

00:12:49.720 --> 00:12:50.860 This is looking at nicotine  
NOTE Confidence: 0.90458786

00:12:51.000 --> 00:12:51.980 use during pregnancy.  
NOTE Confidence: 0.98840904

00:12:52.360 --> 00:12:53.160 And one of the things  
NOTE Confidence: 0.98840904

00:12:53.160 --> 00:12:54.279 that has been consistently found  
NOTE Confidence: 0.98840904

00:12:54.279 --> 00:12:55.480 with this is that smoking  
NOTE Confidence: 0.98840904

00:12:55.480 --> 00:12:57.405 during pregnancy is associated with  
NOTE Confidence: 0.98840904

00:12:57.645 --> 00:12:59.905 greater externalizing behavior in children.  
NOTE Confidence: 0.98840904

00:12:59.965 --> 00:13:01.005 What you're looking at here  
NOTE Confidence: 0.98840904

00:13:01.005 --> 00:13:02.945 are nonviolent criminal offenses.  
NOTE Confidence: 0.96981734

00:13:03.565 --> 00:13:04.865 And up on the top  
NOTE Confidence: 0.96981734

00:13:04.925 --> 00:13:05.965 the top of the panel

NOTE Confidence: 0.96981734

00:13:05.965 --> 00:13:07.405 a here is just a

NOTE Confidence: 0.96981734

00:13:07.405 --> 00:13:09.405 population based comparison, where you're

NOTE Confidence: 0.96981734

00:13:09.405 --> 00:13:10.765 looking at individuals who are

NOTE Confidence: 0.96981734

00:13:10.765 --> 00:13:11.910 smoke who who are born

NOTE Confidence: 0.96981734

00:13:11.910 --> 00:13:13.270 to pregnancies in which smoking

NOTE Confidence: 0.96981734

00:13:13.270 --> 00:13:14.730 occurred by the solid line

NOTE Confidence: 0.96981734

00:13:15.029 --> 00:13:16.390 as well as pregnancies where

NOTE Confidence: 0.96981734

00:13:16.390 --> 00:13:17.589 there's no smoking in the

NOTE Confidence: 0.96981734

00:13:17.589 --> 00:13:18.950 dashed line. And as you

NOTE Confidence: 0.96981734

00:13:18.950 --> 00:13:20.470 can see here, there's a

NOTE Confidence: 0.96981734

00:13:20.470 --> 00:13:22.089 vastly increased risk

NOTE Confidence: 0.99976367

00:13:22.550 --> 00:13:23.050 among

NOTE Confidence: 0.91087735

00:13:24.285 --> 00:13:24.785 children,

NOTE Confidence: 0.9049778

00:13:25.325 --> 00:13:26.845 who are and this is

NOTE Confidence: 0.9049778

00:13:26.845 --> 00:13:28.524 as they're adults, essentially, entering

NOTE Confidence: 0.9049778

00:13:28.524 --> 00:13:29.184 young adulthood,  
NOTE Confidence: 0.9716181

00:13:29.804 --> 00:13:31.084 who are exposed to smoking  
NOTE Confidence: 0.9716181

00:13:31.084 --> 00:13:31.904 during pregnancy.  
NOTE Confidence: 0.9517955

00:13:32.684 --> 00:13:33.885 But the key thing that  
NOTE Confidence: 0.9517955

00:13:33.885 --> 00:13:35.325 they did was in this  
NOTE Confidence: 0.9517955

00:13:35.325 --> 00:13:35.825 dataset,  
NOTE Confidence: 0.93747705

00:13:36.809 --> 00:13:38.650 there was a substantively large  
NOTE Confidence: 0.93747705

00:13:38.650 --> 00:13:39.550 number of siblings,  
NOTE Confidence: 0.9671824

00:13:40.010 --> 00:13:41.130 and there were siblings that  
NOTE Confidence: 0.9671824

00:13:41.130 --> 00:13:43.290 had discordant pregnancies, where one  
NOTE Confidence: 0.9671824

00:13:43.290 --> 00:13:45.150 sibling was exposed to nicotine  
NOTE Confidence: 0.9671824

00:13:45.210 --> 00:13:46.570 use, while while they were  
NOTE Confidence: 0.9671824

00:13:46.570 --> 00:13:48.090 gestating, and the other one  
NOTE Confidence: 0.9671824

00:13:48.090 --> 00:13:49.325 was not. So it's a  
NOTE Confidence: 0.9671824

00:13:49.325 --> 00:13:50.445 really nice discordant design. Of  
NOTE Confidence: 0.9671824

00:13:50.445 --> 00:13:51.085 course, there could be, you

NOTE Confidence: 0.9671824

00:13:51.085 --> 00:13:52.605 know, other factors associated with

NOTE Confidence: 0.9671824

00:13:52.605 --> 00:13:53.585 why, you know,

NOTE Confidence: 0.97509307

00:13:54.205 --> 00:13:55.165 nicotine was being used in

NOTE Confidence: 0.97509307

00:13:55.165 --> 00:13:56.445 those pregnancies or not. So,

NOTE Confidence: 0.97509307

00:13:56.445 --> 00:13:57.485 you know, there are certainly

NOTE Confidence: 0.97509307

00:13:57.485 --> 00:13:58.765 compounds that could could still

NOTE Confidence: 0.97509307

00:13:58.765 --> 00:14:00.365 be occurring here. But the

NOTE Confidence: 0.97509307

00:14:00.365 --> 00:14:01.645 really interesting thing they find

NOTE Confidence: 0.97509307

00:14:01.645 --> 00:14:03.040 is that no difference is

NOTE Confidence: 0.97509307

00:14:03.040 --> 00:14:04.720 observed in externalizing behavior when

NOTE Confidence: 0.97509307

00:14:04.720 --> 00:14:05.600 you account for this. So

NOTE Confidence: 0.97509307

00:14:05.600 --> 00:14:06.800 when you're accounting for the

NOTE Confidence: 0.97509307

00:14:06.800 --> 00:14:08.559 shared genetic and shared familial

NOTE Confidence: 0.97509307

00:14:08.559 --> 00:14:09.620 environmental factors,

NOTE Confidence: 0.97720623

00:14:09.920 --> 00:14:11.280 it seems like this association

NOTE Confidence: 0.97720623

00:14:11.280 --> 00:14:12.880 with smoking during pregnancy may  
NOTE Confidence: 0.97720623

00:14:12.880 --> 00:14:13.920 not be causal. It may  
NOTE Confidence: 0.97720623

00:14:13.920 --> 00:14:16.020 be a predisposition or epiphenomenon  
NOTE Confidence: 0.97720623

00:14:16.320 --> 00:14:17.360 associated with some of these  
NOTE Confidence: 0.97720623

00:14:17.360 --> 00:14:17.745 confounds.  
NOTE Confidence: 0.9930225

00:14:18.304 --> 00:14:19.345 So because of these reasons,  
NOTE Confidence: 0.9930225

00:14:19.345 --> 00:14:20.305 I think it's it's really  
NOTE Confidence: 0.9930225

00:14:20.305 --> 00:14:21.505 important to try to account  
NOTE Confidence: 0.9930225

00:14:21.505 --> 00:14:22.625 for these these confounds kind  
NOTE Confidence: 0.9930225

00:14:22.625 --> 00:14:23.505 of as as best we  
NOTE Confidence: 0.9930225

00:14:23.505 --> 00:14:25.185 can to, you know, increase  
NOTE Confidence: 0.9930225

00:14:25.185 --> 00:14:26.705 the possibility that the association  
NOTE Confidence: 0.9930225

00:14:26.705 --> 00:14:27.765 we're seeing are predispositional  
NOTE Confidence: 0.98101074

00:14:28.225 --> 00:14:30.225 and or causal, right, or  
NOTE Confidence: 0.98101074

00:14:30.225 --> 00:14:31.205 potentially causal.  
NOTE Confidence: 0.9692862

00:14:32.510 --> 00:14:33.550 So in a series of

NOTE Confidence: 0.9692862

00:14:33.550 --> 00:14:35.470 studies, we've looked at childhood

NOTE Confidence: 0.9692862

00:14:35.470 --> 00:14:37.250 outcomes associated with prenatal exposure

NOTE Confidence: 0.91832095

00:14:37.790 --> 00:14:38.990 in the a, b, c,

NOTE Confidence: 0.91832095

00:14:38.990 --> 00:14:40.050 d, cohort.

NOTE Confidence: 0.9972031

00:14:40.430 --> 00:14:41.710 And what you're seeing over

NOTE Confidence: 0.9972031

00:14:41.710 --> 00:14:43.310 here on the right hand

NOTE Confidence: 0.9972031

00:14:43.310 --> 00:14:43.810 side

NOTE Confidence: 0.9812307

00:14:44.274 --> 00:14:46.274 is the, beta estimates, the

NOTE Confidence: 0.9812307

00:14:46.274 --> 00:14:47.955 standardized effects, and the ninety

NOTE Confidence: 0.9812307

00:14:47.955 --> 00:14:49.415 five percent confidence intervals.

NOTE Confidence: 0.94825125

00:14:49.795 --> 00:14:51.315 The red dots and,

NOTE Confidence: 0.94671065

00:14:51.875 --> 00:14:53.475 intervals are, those who are

NOTE Confidence: 0.94671065

00:14:53.475 --> 00:14:54.834 exposed both pre and post

NOTE Confidence: 0.94671065

00:14:54.834 --> 00:14:55.795 knowledge. There are very few

NOTE Confidence: 0.94671065

00:14:55.795 --> 00:14:56.834 people who are only exposed

NOTE Confidence: 0.94671065

00:14:56.834 --> 00:14:57.840 post knowledge or pregnancy.  
NOTE Confidence: 0.9603308

00:14:58.480 --> 00:14:59.680 And then in the blue  
NOTE Confidence: 0.9603308

00:14:59.680 --> 00:15:00.960 are the individuals who were  
NOTE Confidence: 0.9603308

00:15:00.960 --> 00:15:02.420 exposed pre knowledge only.  
NOTE Confidence: 0.97659034

00:15:02.960 --> 00:15:04.240 And just to orient you,  
NOTE Confidence: 0.97659034

00:15:04.240 --> 00:15:05.280 essentially, the top part of  
NOTE Confidence: 0.97659034

00:15:05.280 --> 00:15:06.160 the graph for the most  
NOTE Confidence: 0.97659034

00:15:06.160 --> 00:15:07.920 part is externalizing problems. So  
NOTE Confidence: 0.97659034

00:15:07.920 --> 00:15:09.120 when I say externalizing, I  
NOTE Confidence: 0.97659034

00:15:09.120 --> 00:15:10.980 mean things like impulsivity, aggression,  
NOTE Confidence: 0.97659034

00:15:11.200 --> 00:15:12.260 those sorts of things.  
NOTE Confidence: 0.99216986

00:15:12.615 --> 00:15:13.654 And then on the bottom  
NOTE Confidence: 0.99216986

00:15:13.654 --> 00:15:14.795 are more internalizing,  
NOTE Confidence: 0.9585702

00:15:15.495 --> 00:15:17.255 related constructs like anxiety and  
NOTE Confidence: 0.9585702

00:15:17.255 --> 00:15:18.455 depression and the like. And  
NOTE Confidence: 0.9585702

00:15:18.455 --> 00:15:19.175 in the middle, there are

NOTE Confidence: 0.9585702

00:15:19.175 --> 00:15:20.535 also some total problems, which

NOTE Confidence: 0.9585702

00:15:20.535 --> 00:15:21.755 is just general psychopathology.

NOTE Confidence: 0.99976003

00:15:22.535 --> 00:15:23.595 But the main point

NOTE Confidence: 0.99003106

00:15:23.895 --> 00:15:25.575 is that across the board,

NOTE Confidence: 0.99003106

00:15:25.575 --> 00:15:27.435 children exposed to prenatal cannabis

NOTE Confidence: 0.99931383

00:15:28.240 --> 00:15:29.460 have increased rates

NOTE Confidence: 0.99990016

00:15:29.920 --> 00:15:30.580 of psychopathology

NOTE Confidence: 0.9849165

00:15:30.960 --> 00:15:32.480 broadly. This is most pronounced

NOTE Confidence: 0.9849165

00:15:32.480 --> 00:15:34.000 for externalizing. And just to

NOTE Confidence: 0.9849165

00:15:34.000 --> 00:15:34.880 show you what this looks

NOTE Confidence: 0.9849165

00:15:34.880 --> 00:15:36.080 like across groups, you can

NOTE Confidence: 0.9849165

00:15:36.080 --> 00:15:37.040 see a zoomed in plot

NOTE Confidence: 0.9849165

00:15:37.040 --> 00:15:38.660 of externalizing over here.

NOTE Confidence: 0.9135373

00:15:39.200 --> 00:15:40.640 And it's actually those exposed

NOTE Confidence: 0.9135373

00:15:40.640 --> 00:15:42.580 postknowledge of pregnancy in particular

NOTE Confidence: 0.96692836

00:15:42.995 --> 00:15:44.615 had, much higher rates.  
NOTE Confidence: 0.9570445

00:15:45.235 --> 00:15:46.595 The way that that there  
NOTE Confidence: 0.9570445

00:15:46.595 --> 00:15:48.834 was assessments of frequency and,  
NOTE Confidence: 0.9707178

00:15:49.795 --> 00:15:50.915 of of cannabis being used,  
NOTE Confidence: 0.9707178

00:15:50.915 --> 00:15:52.195 but it wasn't very clear  
NOTE Confidence: 0.9707178

00:15:52.195 --> 00:15:53.154 what those meant, but there  
NOTE Confidence: 0.9707178

00:15:53.154 --> 00:15:54.695 were no differences in reported  
NOTE Confidence: 0.9707178

00:15:54.755 --> 00:15:55.800 frequency of use  
NOTE Confidence: 0.9389423

00:15:56.120 --> 00:15:58.040 among those who used only  
NOTE Confidence: 0.9389423

00:15:58.040 --> 00:15:59.399 preknowledge of pregnancy and those  
NOTE Confidence: 0.9389423

00:15:59.399 --> 00:16:00.680 who used postknowledge of pregnancy.  
NOTE Confidence: 0.9389423

00:16:00.680 --> 00:16:01.880 So it does seem to  
NOTE Confidence: 0.9389423

00:16:01.880 --> 00:16:02.839 be a dose response thing,  
NOTE Confidence: 0.9389423

00:16:02.839 --> 00:16:03.880 although it obviously would be  
NOTE Confidence: 0.9389423

00:16:03.880 --> 00:16:05.000 associated with these these later  
NOTE Confidence: 0.9389423

00:16:05.000 --> 00:16:06.860 stages or more continued use.

NOTE Confidence: 0.9944266

00:16:08.654 --> 00:16:09.535 The other thing I wanna

NOTE Confidence: 0.9944266

00:16:09.535 --> 00:16:10.495 point out here is that

NOTE Confidence: 0.9944266

00:16:10.495 --> 00:16:12.115 we did throw in a

NOTE Confidence: 0.9783111

00:16:12.735 --> 00:16:13.935 a huge number of potential

NOTE Confidence: 0.9783111

00:16:13.935 --> 00:16:16.095 confounders, things, you know, like

NOTE Confidence: 0.9783111

00:16:16.095 --> 00:16:17.475 family history of psychopathology,

NOTE Confidence: 0.9756042

00:16:18.654 --> 00:16:20.355 other substance use during pregnancy,

NOTE Confidence: 0.982631

00:16:21.214 --> 00:16:22.735 prenatal vitamin use, whether the

NOTE Confidence: 0.982631

00:16:22.735 --> 00:16:24.090 pregnancy was planned or not,

NOTE Confidence: 0.982631

00:16:24.090 --> 00:16:25.450 all of those things. And

NOTE Confidence: 0.982631

00:16:25.450 --> 00:16:26.330 then the other important thing

NOTE Confidence: 0.982631

00:16:26.330 --> 00:16:26.970 I think we we threw

NOTE Confidence: 0.982631

00:16:26.970 --> 00:16:28.250 in here was polygenic risk

NOTE Confidence: 0.982631

00:16:28.250 --> 00:16:29.530 for addiction liability in the

NOTE Confidence: 0.982631

00:16:29.530 --> 00:16:30.030 child.

NOTE Confidence: 0.91325116

00:16:30.490 --> 00:16:31.690 So we can take a  
NOTE Confidence: 0.91325116

00:16:31.850 --> 00:16:33.290 an index of general substance  
NOTE Confidence: 0.91325116

00:16:33.290 --> 00:16:34.250 liability from some of our  
NOTE Confidence: 0.91325116

00:16:34.250 --> 00:16:35.370 largest p was that we've  
NOTE Confidence: 0.91325116

00:16:35.370 --> 00:16:36.430 been able to conduct  
NOTE Confidence: 0.9875019

00:16:36.810 --> 00:16:38.410 and estimate the child's genetic  
NOTE Confidence: 0.9875019

00:16:38.410 --> 00:16:39.885 liability to that. And we're  
NOTE Confidence: 0.9875019

00:16:39.885 --> 00:16:40.845 able to account for that  
NOTE Confidence: 0.9875019

00:16:40.845 --> 00:16:41.805 and show that these effects  
NOTE Confidence: 0.9875019

00:16:41.805 --> 00:16:43.425 are present beyond that.  
NOTE Confidence: 0.9794056

00:16:43.965 --> 00:16:45.565 I do wanna be totally  
NOTE Confidence: 0.9794056

00:16:45.565 --> 00:16:46.765 clear. I'm not convinced these  
NOTE Confidence: 0.9794056

00:16:46.765 --> 00:16:48.045 are causal effects by any  
NOTE Confidence: 0.9794056

00:16:48.045 --> 00:16:49.105 stretch of the imagination.  
NOTE Confidence: 0.9608825

00:16:49.725 --> 00:16:50.605 And one thing I wanna  
NOTE Confidence: 0.9608825

00:16:50.605 --> 00:16:51.885 point out is polygenic risk

NOTE Confidence: 0.9608825  
00:16:51.885 --> 00:16:53.185 scores in particular  
NOTE Confidence: 0.99370307  
00:16:53.565 --> 00:16:54.065 are  
NOTE Confidence: 0.96880263  
00:16:54.430 --> 00:16:55.950 not very they don't have  
NOTE Confidence: 0.96880263  
00:16:55.950 --> 00:16:57.390 large effects in predicting their  
NOTE Confidence: 0.96880263  
00:16:57.390 --> 00:16:58.670 behavior. Right? So they're you  
NOTE Confidence: 0.96880263  
00:16:58.670 --> 00:16:59.950 know, at best, now we're  
NOTE Confidence: 0.96880263  
00:16:59.950 --> 00:17:00.990 getting up to ten percent  
NOTE Confidence: 0.96880263  
00:17:00.990 --> 00:17:01.790 of the variance in a  
NOTE Confidence: 0.96880263  
00:17:01.790 --> 00:17:03.330 phenotype based on this polygenic  
NOTE Confidence: 0.96880263  
00:17:03.470 --> 00:17:04.750 scores. Right? So this could  
NOTE Confidence: 0.96880263  
00:17:04.750 --> 00:17:05.390 be a little bit of  
NOTE Confidence: 0.96880263  
00:17:05.390 --> 00:17:06.765 a straw person argument where  
NOTE Confidence: 0.96880263  
00:17:06.765 --> 00:17:07.885 it's just still not the  
NOTE Confidence: 0.96880263  
00:17:07.885 --> 00:17:09.405 best index of this, but  
NOTE Confidence: 0.96880263  
00:17:09.405 --> 00:17:10.685 the family history stuff is  
NOTE Confidence: 0.96880263

00:17:10.685 --> 00:17:12.125 a pretty robust predictor. So,  
NOTE Confidence: 0.96880263

00:17:12.365 --> 00:17:13.085 you know, I think it  
NOTE Confidence: 0.96880263

00:17:13.085 --> 00:17:14.305 does increase the possibility  
NOTE Confidence: 0.95989686

00:17:14.925 --> 00:17:16.445 that these could potentially be,  
NOTE Confidence: 0.95989686

00:17:16.445 --> 00:17:17.645 you know, causal effects in  
NOTE Confidence: 0.95989686

00:17:17.645 --> 00:17:18.925 some ways. Although, I wanna  
NOTE Confidence: 0.95989686

00:17:18.925 --> 00:17:20.385 be be very clear.  
NOTE Confidence: 0.9684066

00:17:20.760 --> 00:17:21.960 We really need more data  
NOTE Confidence: 0.9684066

00:17:21.960 --> 00:17:23.480 to to to strengthen some  
NOTE Confidence: 0.9684066

00:17:23.480 --> 00:17:24.540 of those those arguments.  
NOTE Confidence: 0.93409616

00:17:26.600 --> 00:17:28.040 One other thing that, we  
NOTE Confidence: 0.93409616

00:17:28.040 --> 00:17:29.160 also found this was associated  
NOTE Confidence: 0.93409616

00:17:29.160 --> 00:17:30.460 with was cannabis use.  
NOTE Confidence: 0.99370253

00:17:30.760 --> 00:17:31.800 So this was a study  
NOTE Confidence: 0.99370253

00:17:31.800 --> 00:17:32.920 where we looked at about  
NOTE Confidence: 0.99370253

00:17:32.920 --> 00:17:33.980 fifty different phenotypes

NOTE Confidence: 0.9326069

00:17:34.625 --> 00:17:36.325 being associated with early cannabis

NOTE Confidence: 0.9326069

00:17:36.385 --> 00:17:38.085 use in the ABCD dataset.

NOTE Confidence: 0.9326069

00:17:38.385 --> 00:17:40.085 So use by age fifteen

NOTE Confidence: 0.9326069

00:17:40.385 --> 00:17:41.744 of just initiating because that's,

NOTE Confidence: 0.9326069

00:17:41.744 --> 00:17:42.785 you know, about the amount

NOTE Confidence: 0.9326069

00:17:42.785 --> 00:17:44.545 of variability we have. And

NOTE Confidence: 0.9326069

00:17:44.545 --> 00:17:45.505 we found a host of

NOTE Confidence: 0.9326069

00:17:45.505 --> 00:17:47.419 different, you know, correlates. Looking

NOTE Confidence: 0.9326069

00:17:47.419 --> 00:17:48.720 at odd ratios here.

NOTE Confidence: 0.97535706

00:17:49.500 --> 00:17:50.460 And, you know, things like

NOTE Confidence: 0.97535706

00:17:50.460 --> 00:17:51.419 alcohol use are associated with

NOTE Confidence: 0.97535706

00:17:51.419 --> 00:17:52.140 an odd ratio of, like,

NOTE Confidence: 0.97535706

00:17:52.140 --> 00:17:53.179 thirty five. Right? But that's

NOTE Confidence: 0.97535706

00:17:53.179 --> 00:17:54.859 not particularly interesting because, you

NOTE Confidence: 0.97535706

00:17:54.859 --> 00:17:55.980 know, kids using one substance

NOTE Confidence: 0.97535706

00:17:55.980 --> 00:17:56.859 are gonna be likely to  
NOTE Confidence: 0.97535706

00:17:56.859 --> 00:17:57.600 use another.  
NOTE Confidence: 0.9953603

00:17:58.059 --> 00:17:59.020 But the interesting thing is  
NOTE Confidence: 0.9953603

00:17:59.020 --> 00:17:59.980 when you take out those  
NOTE Confidence: 0.9953603

00:17:59.980 --> 00:18:01.820 other, you know, substance use  
NOTE Confidence: 0.9953603

00:18:01.820 --> 00:18:02.320 phenotypes,  
NOTE Confidence: 0.999827

00:18:03.125 --> 00:18:03.865 the most  
NOTE Confidence: 0.95687324

00:18:04.565 --> 00:18:06.565 predictive variable for predicting early  
NOTE Confidence: 0.95687324

00:18:06.565 --> 00:18:08.164 cannabis use initiation was prenatal  
NOTE Confidence: 0.95687324

00:18:08.164 --> 00:18:09.845 cannabis exposure, and its odd  
NOTE Confidence: 0.95687324

00:18:09.845 --> 00:18:12.085 ratio was approaching three, essentially,  
NOTE Confidence: 0.95687324

00:18:12.085 --> 00:18:13.205 so quite a large effect,  
NOTE Confidence: 0.95687324

00:18:13.284 --> 00:18:14.085 like, a lot of these  
NOTE Confidence: 0.95687324

00:18:14.085 --> 00:18:15.205 other small effects that we're  
NOTE Confidence: 0.95687324

00:18:15.205 --> 00:18:15.630 seeing.  
NOTE Confidence: 0.99542886

00:18:16.430 --> 00:18:17.230 One other thing I just

NOTE Confidence: 0.99542886  
00:18:17.230 --> 00:18:18.109 wanna highlight here that I  
NOTE Confidence: 0.99542886  
00:18:18.109 --> 00:18:19.170 think is quite interesting  
NOTE Confidence: 0.97322154  
00:18:19.950 --> 00:18:20.430 is,  
NOTE Confidence: 0.98327434  
00:18:21.070 --> 00:18:21.570 anhedonia.  
NOTE Confidence: 0.9214182  
00:18:21.869 --> 00:18:22.590 Here, if you look at  
NOTE Confidence: 0.9214182  
00:18:22.590 --> 00:18:23.550 mid wave, I don't know  
NOTE Confidence: 0.9214182  
00:18:23.550 --> 00:18:24.270 if you can see my  
NOTE Confidence: 0.9214182  
00:18:24.270 --> 00:18:25.250 cursor. I'm sorry.  
NOTE Confidence: 0.974574  
00:18:26.190 --> 00:18:27.630 But the top blue one  
NOTE Confidence: 0.974574  
00:18:27.630 --> 00:18:28.690 after the golds  
NOTE Confidence: 0.9965437  
00:18:29.150 --> 00:18:31.010 is current and past anhedonia.  
NOTE Confidence: 0.968162  
00:18:31.705 --> 00:18:32.985 This is looking at current  
NOTE Confidence: 0.968162  
00:18:32.985 --> 00:18:35.385 past anhedonia baseline predicting future  
NOTE Confidence: 0.968162  
00:18:35.385 --> 00:18:37.145 cannabis use. And I know  
NOTE Confidence: 0.968162  
00:18:37.145 --> 00:18:38.445 there's this kind of stereotypical  
NOTE Confidence: 0.968162

00:18:38.585 --> 00:18:40.605 anecdotal idea of, you know,  
NOTE Confidence: 0.968162

00:18:40.825 --> 00:18:42.345 stoners that are becoming, like,  
NOTE Confidence: 0.968162

00:18:42.345 --> 00:18:44.309 anhedonic like. This suggests at  
NOTE Confidence: 0.968162

00:18:44.309 --> 00:18:45.830 least that anodontic symptoms are  
NOTE Confidence: 0.968162

00:18:45.830 --> 00:18:47.510 present kind of before the  
NOTE Confidence: 0.968162

00:18:47.510 --> 00:18:48.869 initiation of of of a  
NOTE Confidence: 0.968162

00:18:48.869 --> 00:18:50.309 cannabis use, suggesting that that  
NOTE Confidence: 0.968162

00:18:50.309 --> 00:18:51.030 could be more of a  
NOTE Confidence: 0.968162

00:18:51.030 --> 00:18:51.530 predispositional  
NOTE Confidence: 0.9865736

00:18:51.910 --> 00:18:53.270 risk factor for for use,  
NOTE Confidence: 0.9865736

00:18:53.270 --> 00:18:54.070 which I I think is  
NOTE Confidence: 0.9865736

00:18:54.070 --> 00:18:55.049 quite quite interesting.  
NOTE Confidence: 0.9854612

00:18:57.225 --> 00:18:58.025 So when we look at  
NOTE Confidence: 0.9854612

00:18:58.025 --> 00:19:00.125 behavioral conclusions from these data,  
NOTE Confidence: 0.9854612

00:19:00.345 --> 00:19:01.865 we do find that prenatal  
NOTE Confidence: 0.9854612

00:19:01.865 --> 00:19:03.385 cannabis exposure is associated with

NOTE Confidence: 0.9854612  
00:19:03.385 --> 00:19:04.905 a host of adverse child  
NOTE Confidence: 0.9854612  
00:19:04.905 --> 00:19:06.585 behavior problems. This is really  
NOTE Confidence: 0.9854612  
00:19:06.585 --> 00:19:07.705 across the spectrum. It seems  
NOTE Confidence: 0.9854612  
00:19:07.705 --> 00:19:09.225 to be increased genetic liability  
NOTE Confidence: 0.9854612  
00:19:09.225 --> 00:19:09.965 for psychopathology.  
NOTE Confidence: 0.933121  
00:19:10.480 --> 00:19:11.519 If we throw instead of,  
NOTE Confidence: 0.933121  
00:19:11.519 --> 00:19:12.720 you know, polygenic risk for  
NOTE Confidence: 0.933121  
00:19:12.720 --> 00:19:13.539 substance involvement,  
NOTE Confidence: 0.9462759  
00:19:14.080 --> 00:19:15.119 phenotypes here, if we throw  
NOTE Confidence: 0.9462759  
00:19:15.119 --> 00:19:16.580 in polygenic risk for depression,  
NOTE Confidence: 0.9462759  
00:19:16.720 --> 00:19:18.399 polygenic risk for ADHD, all  
NOTE Confidence: 0.9462759  
00:19:18.399 --> 00:19:19.919 these associations are still there  
NOTE Confidence: 0.9462759  
00:19:19.919 --> 00:19:20.580 as well.  
NOTE Confidence: 0.97993547  
00:19:21.200 --> 00:19:22.080 So it seems to be  
NOTE Confidence: 0.97993547  
00:19:22.080 --> 00:19:23.279 robust for these confounds, but  
NOTE Confidence: 0.97993547

00:19:23.279 --> 00:19:24.320 there obviously, you know, could  
NOTE Confidence: 0.97993547

00:19:24.320 --> 00:19:26.100 be alternative derivations of confounds,  
NOTE Confidence: 0.9675044

00:19:26.455 --> 00:19:27.494 things we're not measuring in  
NOTE Confidence: 0.9675044

00:19:27.494 --> 00:19:28.375 this study that could be  
NOTE Confidence: 0.9675044

00:19:28.375 --> 00:19:29.895 contributing to this association as  
NOTE Confidence: 0.9675044

00:19:29.895 --> 00:19:30.395 well.  
NOTE Confidence: 0.9935163

00:19:32.055 --> 00:19:33.095 One other point I think  
NOTE Confidence: 0.9935163

00:19:33.095 --> 00:19:34.135 is really important to make  
NOTE Confidence: 0.9935163

00:19:34.135 --> 00:19:35.915 with these childhood behavioral outcomes  
NOTE Confidence: 0.95248115

00:19:36.215 --> 00:19:37.255 is that these effects are  
NOTE Confidence: 0.95248115

00:19:37.255 --> 00:19:38.935 generally small. Right? We're talking  
NOTE Confidence: 0.95248115

00:19:38.935 --> 00:19:40.135 about accounting for less than  
NOTE Confidence: 0.95248115

00:19:40.135 --> 00:19:41.335 two percent of variance. So  
NOTE Confidence: 0.95248115

00:19:41.335 --> 00:19:42.240 this is no way to  
NOTE Confidence: 0.95248115

00:19:42.559 --> 00:19:44.100 cannabis exposure would be,  
NOTE Confidence: 0.9581161

00:19:44.559 --> 00:19:45.840 you know, definitively causing this

NOTE Confidence: 0.9581161

00:19:45.840 --> 00:19:47.140 or would be a robust

NOTE Confidence: 0.9581161

00:19:47.200 --> 00:19:48.640 huge predictor of this. I

NOTE Confidence: 0.9581161

00:19:48.640 --> 00:19:49.760 think this really aligns with

NOTE Confidence: 0.9581161

00:19:49.760 --> 00:19:50.720 much of what we're seeing

NOTE Confidence: 0.9581161

00:19:50.720 --> 00:19:52.340 in complex behavioral and biological

NOTE Confidence: 0.9581161

00:19:52.400 --> 00:19:53.280 phenotypes, right,

NOTE Confidence: 0.9878917

00:19:54.000 --> 00:19:55.140 is that most

NOTE Confidence: 0.9790339

00:19:55.585 --> 00:19:57.185 potentially ideological things or even

NOTE Confidence: 0.9790339

00:19:57.185 --> 00:19:58.945 predispositional factors are gonna be

NOTE Confidence: 0.9790339

00:19:58.945 --> 00:20:00.625 associated with small effects. To

NOTE Confidence: 0.9790339

00:20:00.625 --> 00:20:01.425 be honest, if I ever

NOTE Confidence: 0.9790339

00:20:01.425 --> 00:20:02.145 see a large effect, I

NOTE Confidence: 0.9790339

00:20:02.145 --> 00:20:02.945 start to get worried that

NOTE Confidence: 0.9790339

00:20:02.945 --> 00:20:03.985 I'm doing kind of circular

NOTE Confidence: 0.9790339

00:20:03.985 --> 00:20:05.185 research in some way of

NOTE Confidence: 0.9790339

00:20:05.185 --> 00:20:06.225 looking at, like, you know,  
NOTE Confidence: 0.9790339

00:20:06.225 --> 00:20:07.665 elevated mood and it's associated  
NOTE Confidence: 0.9790339

00:20:07.665 --> 00:20:09.060 with bipolar disorder. You know?  
NOTE Confidence: 0.96468663

00:20:09.620 --> 00:20:10.340 It it gets a little  
NOTE Confidence: 0.96468663

00:20:10.500 --> 00:20:11.220 as soon as we start  
NOTE Confidence: 0.96468663

00:20:11.220 --> 00:20:12.020 to look at these things,  
NOTE Confidence: 0.96468663

00:20:12.020 --> 00:20:12.980 I think these small effects  
NOTE Confidence: 0.96468663

00:20:12.980 --> 00:20:13.940 are what I would expect  
NOTE Confidence: 0.96468663

00:20:13.940 --> 00:20:15.380 from my experience at least,  
NOTE Confidence: 0.96468663

00:20:15.380 --> 00:20:16.740 and a reflection of why  
NOTE Confidence: 0.96468663

00:20:16.740 --> 00:20:17.460 we need some of these  
NOTE Confidence: 0.96468663

00:20:17.460 --> 00:20:18.680 large national studies,  
NOTE Confidence: 0.99444246

00:20:19.220 --> 00:20:20.360 to be able to reliably  
NOTE Confidence: 0.99444246

00:20:20.660 --> 00:20:21.640 identify them.  
NOTE Confidence: 0.94863635

00:20:22.965 --> 00:20:23.925 Alright. So the the next  
NOTE Confidence: 0.94863635

00:20:23.925 --> 00:20:24.565 thing we were kind of

NOTE Confidence: 0.94863635

00:20:24.565 --> 00:20:25.685 curious about pushing with this

NOTE Confidence: 0.94863635

00:20:25.685 --> 00:20:27.045 dataset was what are the,

NOTE Confidence: 0.94863635

00:20:27.045 --> 00:20:29.385 you know, plausible biological mechanisms

NOTE Confidence: 0.94863635

00:20:29.525 --> 00:20:30.825 that may be occurring.

NOTE Confidence: 0.9292365

00:20:31.285 --> 00:20:32.165 So here we went to

NOTE Confidence: 0.9292365

00:20:32.165 --> 00:20:33.125 some of the brain data,

NOTE Confidence: 0.9292365

00:20:33.125 --> 00:20:34.005 and I I think you

NOTE Confidence: 0.9292365

00:20:34.005 --> 00:20:35.045 guys are probably, I'm sure,

NOTE Confidence: 0.9292365

00:20:35.045 --> 00:20:36.270 very well versed with this.

NOTE Confidence: 0.9292365

00:20:36.430 --> 00:20:37.970 The cannabinoid system

NOTE Confidence: 0.9723498

00:20:38.510 --> 00:20:39.790 is, you know, involved in

NOTE Confidence: 0.9723498

00:20:39.790 --> 00:20:41.890 very basic processes, like neurogenesis,

NOTE Confidence: 0.9463359

00:20:42.190 --> 00:20:42.690 synaptogenesis,

NOTE Confidence: 0.89793783

00:20:43.070 --> 00:20:45.010 neural migration, axonal, like, elongation.

NOTE Confidence: 0.89793783

00:20:45.150 --> 00:20:46.190 Right? We know all this

NOTE Confidence: 0.89793783

00:20:46.190 --> 00:20:47.630 from some really elegant animal  
NOTE Confidence: 0.89793783

00:20:47.630 --> 00:20:48.670 work, right, looking at, like,  
NOTE Confidence: 0.89793783

00:20:48.670 --> 00:20:49.790 the c b one agonists  
NOTE Confidence: 0.89793783

00:20:49.790 --> 00:20:51.250 and and all those data.  
NOTE Confidence: 0.9859486

00:20:51.710 --> 00:20:52.845 And then from some other,  
NOTE Confidence: 0.9859486

00:20:52.845 --> 00:20:54.125 you know, associative studies in  
NOTE Confidence: 0.9859486

00:20:54.125 --> 00:20:55.165 humans, we know it's also  
NOTE Confidence: 0.9859486

00:20:55.165 --> 00:20:56.685 associated with some more complex  
NOTE Confidence: 0.9859486

00:20:56.685 --> 00:20:57.825 biological phenotypes,  
NOTE Confidence: 0.99664056

00:20:58.205 --> 00:20:59.165 things like how the brain  
NOTE Confidence: 0.99664056

00:20:59.165 --> 00:21:01.025 is reacting to threatening information,  
NOTE Confidence: 0.9216459

00:21:01.885 --> 00:21:04.225 learning and memory, cognition, how  
NOTE Confidence: 0.9216459

00:21:04.369 --> 00:21:06.369 fear conditioning is accrued even  
NOTE Confidence: 0.9216459

00:21:06.369 --> 00:21:07.810 through someone like Matt Hill's  
NOTE Confidence: 0.9216459

00:21:07.810 --> 00:21:09.650 really elegant work, looking at  
NOTE Confidence: 0.9216459

00:21:09.650 --> 00:21:10.850 this in some nonhuman animal

NOTE Confidence: 0.9216459

00:21:10.850 --> 00:21:11.670 models. And,

NOTE Confidence: 0.8770594

00:21:12.050 --> 00:21:12.690 we also know it's a

NOTE Confidence: 0.8770594

00:21:12.690 --> 00:21:14.050 search with reproduction and pregnancy

NOTE Confidence: 0.8770594

00:21:14.050 --> 00:21:16.070 and placental function. Right? Endocannabinoid

NOTE Confidence: 0.8770594

00:21:16.369 --> 00:21:17.490 levels track with things like

NOTE Confidence: 0.8770594

00:21:17.490 --> 00:21:18.690 miscarriage and the like, so

NOTE Confidence: 0.8770594

00:21:18.690 --> 00:21:19.730 they they are also seem

NOTE Confidence: 0.8770594

00:21:19.730 --> 00:21:21.825 to be very largely contributing,

NOTE Confidence: 0.988356

00:21:23.105 --> 00:21:25.365 to to, the intrauterine environment.

NOTE Confidence: 0.9589823

00:21:25.665 --> 00:21:26.625 And then one other thing

NOTE Confidence: 0.9589823

00:21:26.625 --> 00:21:27.744 I just wanna highlight is

NOTE Confidence: 0.9589823

00:21:27.744 --> 00:21:29.425 the association with inflammation, which

NOTE Confidence: 0.9589823

00:21:29.425 --> 00:21:30.465 I'll show you some data,

NOTE Confidence: 0.9589823

00:21:30.465 --> 00:21:31.665 are also much less clear

NOTE Confidence: 0.9589823

00:21:31.665 --> 00:21:32.850 cut than I think the

NOTE Confidence: 0.9589823

00:21:33.090 --> 00:21:34.690 assumptions often are, right, that  
NOTE Confidence: 0.9589823

00:21:34.690 --> 00:21:35.650 cannabis seems to have an,  
NOTE Confidence: 0.9589823

00:21:35.650 --> 00:21:37.169 you know, suppressant effect or  
NOTE Confidence: 0.9589823

00:21:37.169 --> 00:21:37.990 reduce inflammation.  
NOTE Confidence: 0.9463094

00:21:38.530 --> 00:21:39.570 I'll share some data with  
NOTE Confidence: 0.9463094

00:21:39.570 --> 00:21:40.609 you that where we find,  
NOTE Confidence: 0.9786957

00:21:41.169 --> 00:21:42.369 very strong levels of use  
NOTE Confidence: 0.9786957

00:21:42.369 --> 00:21:43.650 are actually associated with increased  
NOTE Confidence: 0.9786957

00:21:43.650 --> 00:21:44.929 inflammation in this j like  
NOTE Confidence: 0.9786957

00:21:44.929 --> 00:21:46.369 curve, which I I think  
NOTE Confidence: 0.9786957

00:21:46.369 --> 00:21:47.590 is quite quite interesting.  
NOTE Confidence: 0.9969146

00:21:48.385 --> 00:21:49.025 But these are just some  
NOTE Confidence: 0.9969146

00:21:49.025 --> 00:21:49.744 of the data that I  
NOTE Confidence: 0.9969146

00:21:49.744 --> 00:21:51.445 find, you know, very compelling  
NOTE Confidence: 0.9969146

00:21:51.505 --> 00:21:53.125 to implicate the endocannabinoid  
NOTE Confidence: 0.7549468

00:21:53.505 --> 00:21:54.325 system and

NOTE Confidence: 0.85264087  
00:21:54.625 --> 00:21:56.465 THC and cannabis, possibly in  
NOTE Confidence: 0.85264087  
00:21:56.465 --> 00:21:56.965 neurodevelopment.  
NOTE Confidence: 0.9986565  
00:21:58.065 --> 00:21:59.184 What you're looking at over  
NOTE Confidence: 0.9986565  
00:21:59.184 --> 00:22:00.405 on the left is  
NOTE Confidence: 0.9035409  
00:22:00.760 --> 00:22:02.200 the data suggesting that WIN,  
NOTE Confidence: 0.9035409  
00:22:02.200 --> 00:22:02.840 which is a c b  
NOTE Confidence: 0.9035409  
00:22:02.840 --> 00:22:04.039 one agonist you could think  
NOTE Confidence: 0.9035409  
00:22:04.039 --> 00:22:04.780 of it as,  
NOTE Confidence: 0.99835354  
00:22:05.880 --> 00:22:07.340 leads to axonal repulsion.  
NOTE Confidence: 0.95039994  
00:22:07.640 --> 00:22:08.600 So, you know, these these  
NOTE Confidence: 0.95039994  
00:22:08.600 --> 00:22:10.280 growth currents will will develop  
NOTE Confidence: 0.95039994  
00:22:10.280 --> 00:22:11.480 out and with BDNF, for  
NOTE Confidence: 0.95039994  
00:22:11.480 --> 00:22:12.615 example, you'll see it growing  
NOTE Confidence: 0.95039994  
00:22:12.695 --> 00:22:13.815 towards where the BDNF is  
NOTE Confidence: 0.95039994  
00:22:13.815 --> 00:22:16.215 no is, placed as indicated  
NOTE Confidence: 0.95039994

00:22:16.215 --> 00:22:17.975 by the the white, cursor  
NOTE Confidence: 0.95039994

00:22:17.975 --> 00:22:19.494 there. But when you add  
NOTE Confidence: 0.95039994

00:22:19.494 --> 00:22:21.095 WIND, for example, which is  
NOTE Confidence: 0.95039994

00:22:21.175 --> 00:22:22.054 you can think of as  
NOTE Confidence: 0.95039994

00:22:22.054 --> 00:22:23.895 being functionally similar to THC  
NOTE Confidence: 0.95039994

00:22:23.895 --> 00:22:25.335 in many ways, but acting  
NOTE Confidence: 0.95039994

00:22:25.335 --> 00:22:26.215 on c v one and  
NOTE Confidence: 0.95039994

00:22:26.215 --> 00:22:28.049 agonizing it, That leads to  
NOTE Confidence: 0.95039994

00:22:28.049 --> 00:22:29.730 growth cone repulsion where the  
NOTE Confidence: 0.95039994

00:22:29.730 --> 00:22:31.090 neurons will actually grow away  
NOTE Confidence: 0.95039994

00:22:31.090 --> 00:22:32.529 from that area. So you  
NOTE Confidence: 0.95039994

00:22:32.529 --> 00:22:33.409 can see how this could  
NOTE Confidence: 0.95039994

00:22:33.409 --> 00:22:34.369 lead to things and, you  
NOTE Confidence: 0.95039994

00:22:34.369 --> 00:22:35.890 know, arguably even things like  
NOTE Confidence: 0.95039994

00:22:35.890 --> 00:22:36.390 psycho  
NOTE Confidence: 0.9811331

00:22:37.169 --> 00:22:39.270 architectural differences associated with schizophrenia

NOTE Confidence: 0.9811331

00:22:39.330 --> 00:22:40.130 risk and all of those

NOTE Confidence: 0.9811331

00:22:40.130 --> 00:22:41.330 sorts of things that that

NOTE Confidence: 0.9811331

00:22:41.330 --> 00:22:41.830 that,

NOTE Confidence: 0.99474156

00:22:42.210 --> 00:22:42.885 you know, you could see

NOTE Confidence: 0.99474156

00:22:42.885 --> 00:22:44.345 the endocannabinoid system

NOTE Confidence: 0.8549967

00:22:44.645 --> 00:22:45.145 impacting.

NOTE Confidence: 0.96806103

00:22:45.525 --> 00:22:46.325 And then you also see

NOTE Confidence: 0.96806103

00:22:46.325 --> 00:22:47.445 in adults, at least, you

NOTE Confidence: 0.96806103

00:22:47.445 --> 00:22:49.125 know, reductions in new synapse

NOTE Confidence: 0.96806103

00:22:49.125 --> 00:22:50.325 formation and including in in

NOTE Confidence: 0.96806103

00:22:50.325 --> 00:22:52.165 rhesus macaque models. And then

NOTE Confidence: 0.96806103

00:22:52.165 --> 00:22:53.205 there is some evidence of

NOTE Confidence: 0.96806103

00:22:53.205 --> 00:22:55.525 prenatal cannabis exposure increasing GABA

NOTE Confidence: 0.96806103

00:22:55.525 --> 00:22:57.045 interneurons in the hippocampus and

NOTE Confidence: 0.96806103

00:22:57.045 --> 00:22:58.619 some some nonhuman animal models  
NOTE Confidence: 0.96806103

00:22:58.619 --> 00:22:59.660 as well. So I think  
NOTE Confidence: 0.96806103

00:22:59.660 --> 00:23:00.640 it's very plausible,  
NOTE Confidence: 0.9992174

00:23:00.940 --> 00:23:01.440 obviously,  
NOTE Confidence: 0.98018366

00:23:01.980 --> 00:23:03.500 that the endocannabinoid system and  
NOTE Confidence: 0.98018366

00:23:03.500 --> 00:23:05.100 changing this at these developmental  
NOTE Confidence: 0.98018366

00:23:05.100 --> 00:23:06.940 time periods could have, you  
NOTE Confidence: 0.98018366

00:23:06.940 --> 00:23:09.260 know, potential consequences on growth  
NOTE Confidence: 0.98018366

00:23:09.260 --> 00:23:09.920 and development.  
NOTE Confidence: 0.966504

00:23:10.984 --> 00:23:11.785 So to do this, we  
NOTE Confidence: 0.966504

00:23:11.785 --> 00:23:12.425 looked at some of the  
NOTE Confidence: 0.966504

00:23:12.425 --> 00:23:14.105 neuroimaging data that's involved in  
NOTE Confidence: 0.966504

00:23:14.105 --> 00:23:15.385 the ABCD study. We had  
NOTE Confidence: 0.966504

00:23:15.385 --> 00:23:16.825 two time points. So we  
NOTE Confidence: 0.966504

00:23:16.825 --> 00:23:17.865 had one time point at  
NOTE Confidence: 0.966504

00:23:17.865 --> 00:23:19.065 baseline when the children were

NOTE Confidence: 0.966504  
00:23:19.065 --> 00:23:20.345 on average nine to ten,  
NOTE Confidence: 0.966504  
00:23:20.345 --> 00:23:21.465 and then another one when  
NOTE Confidence: 0.966504  
00:23:21.465 --> 00:23:22.984 they were, on average eleven  
NOTE Confidence: 0.966504  
00:23:22.984 --> 00:23:23.645 to twelve.  
NOTE Confidence: 0.9258375  
00:23:24.619 --> 00:23:25.980 There is partial data release  
NOTE Confidence: 0.9258375  
00:23:25.980 --> 00:23:26.700 to the other one, but  
NOTE Confidence: 0.9258375  
00:23:26.700 --> 00:23:28.000 we find there being differences  
NOTE Confidence: 0.9642071  
00:23:28.700 --> 00:23:29.660 in kind of exposure and  
NOTE Confidence: 0.9642071  
00:23:29.660 --> 00:23:31.660 risk risk, variables in that,  
NOTE Confidence: 0.9642071  
00:23:31.660 --> 00:23:32.460 and that it seems like  
NOTE Confidence: 0.9642071  
00:23:32.460 --> 00:23:33.100 some of the kids that  
NOTE Confidence: 0.9642071  
00:23:33.100 --> 00:23:34.400 came into the study later  
NOTE Confidence: 0.9642071  
00:23:34.460 --> 00:23:35.660 were more enriched for for  
NOTE Confidence: 0.9642071  
00:23:35.660 --> 00:23:37.020 problems. So because of that,  
NOTE Confidence: 0.9642071  
00:23:37.020 --> 00:23:38.140 we restricted our data to  
NOTE Confidence: 0.9642071

00:23:38.140 --> 00:23:39.100 these two year data, but  
NOTE Confidence: 0.9642071

00:23:39.100 --> 00:23:40.215 we're expecting a new data  
NOTE Confidence: 0.9642071

00:23:40.215 --> 00:23:41.195 release really soon.  
NOTE Confidence: 0.9658069

00:23:42.455 --> 00:23:43.414 In this study, we didn't  
NOTE Confidence: 0.9658069

00:23:43.414 --> 00:23:44.215 feel like we had great  
NOTE Confidence: 0.9658069

00:23:44.215 --> 00:23:45.575 priors for what we would  
NOTE Confidence: 0.9658069

00:23:45.575 --> 00:23:47.015 expect. So we took a  
NOTE Confidence: 0.9658069

00:23:47.015 --> 00:23:48.554 kind of all encompassing approach  
NOTE Confidence: 0.9658069

00:23:48.615 --> 00:23:49.975 and just looked at all  
NOTE Confidence: 0.9658069

00:23:49.975 --> 00:23:51.734 different indices of brain structure  
NOTE Confidence: 0.9658069

00:23:51.734 --> 00:23:53.515 and resting stage functional connectivity  
NOTE Confidence: 0.9658069

00:23:53.654 --> 00:23:54.740 here. We did look at  
NOTE Confidence: 0.9658069

00:23:54.740 --> 00:23:56.100 task related data because of  
NOTE Confidence: 0.9658069

00:23:56.100 --> 00:23:57.240 some problems with the reliability  
NOTE Confidence: 0.9628802

00:23:57.940 --> 00:23:59.060 associated with it. Although, I'm  
NOTE Confidence: 0.9628802

00:23:59.140 --> 00:23:59.780 I must say, I think

NOTE Confidence: 0.9628802

00:23:59.780 --> 00:24:01.300 there are some exciting developments

NOTE Confidence: 0.9628802

00:24:01.300 --> 00:24:02.500 there that David Behringer is

NOTE Confidence: 0.9628802

00:24:02.500 --> 00:24:03.940 doing and leading actually, looking

NOTE Confidence: 0.9628802

00:24:03.940 --> 00:24:05.619 at neural signatures, and we're

NOTE Confidence: 0.9628802

00:24:05.619 --> 00:24:06.820 increasing the reliability of some

NOTE Confidence: 0.9628802

00:24:06.820 --> 00:24:07.619 of those. I'm hopeful to

NOTE Confidence: 0.9628802

00:24:07.619 --> 00:24:08.340 look at those in the

NOTE Confidence: 0.9628802

00:24:08.340 --> 00:24:09.320 future as well.

NOTE Confidence: 0.9655269

00:24:09.895 --> 00:24:10.855 But we essentially took an

NOTE Confidence: 0.9655269

00:24:10.855 --> 00:24:12.135 all comers approach and just

NOTE Confidence: 0.9655269

00:24:12.135 --> 00:24:13.895 corrected for multiple testing correction

NOTE Confidence: 0.9655269

00:24:13.895 --> 00:24:15.015 across all of these different

NOTE Confidence: 0.9655269

00:24:15.015 --> 00:24:15.975 tests that were we were

NOTE Confidence: 0.9655269

00:24:15.975 --> 00:24:17.095 running. So there could be

NOTE Confidence: 0.9655269

00:24:17.095 --> 00:24:18.295 some false negatives in here

NOTE Confidence: 0.9655269

00:24:18.295 --> 00:24:19.655 without a doubt, but we  
NOTE Confidence: 0.9655269

00:24:19.655 --> 00:24:20.775 think we're pretty well protecting  
NOTE Confidence: 0.9655269

00:24:20.775 --> 00:24:21.915 against false positives.  
NOTE Confidence: 0.9551085

00:24:22.990 --> 00:24:23.789 And then we tried to  
NOTE Confidence: 0.9551085

00:24:23.789 --> 00:24:24.929 see if any of these,  
NOTE Confidence: 0.9324916

00:24:25.869 --> 00:24:27.570 neural differences that are associated  
NOTE Confidence: 0.9324916

00:24:27.789 --> 00:24:29.630 with prenatal cannabis exposure may  
NOTE Confidence: 0.9324916

00:24:29.630 --> 00:24:31.150 be associated with future child  
NOTE Confidence: 0.9324916

00:24:31.150 --> 00:24:33.090 behavior. So we do have  
NOTE Confidence: 0.9324916

00:24:33.150 --> 00:24:34.270 data time points a year  
NOTE Confidence: 0.9324916

00:24:34.270 --> 00:24:35.725 later on the behavior of  
NOTE Confidence: 0.9324916

00:24:35.725 --> 00:24:36.284 these kids. So we could  
NOTE Confidence: 0.9324916

00:24:36.284 --> 00:24:37.885 look at longitudinal mediation. So  
NOTE Confidence: 0.9324916

00:24:37.885 --> 00:24:39.164 it's prenatal exposure associated with  
NOTE Confidence: 0.9324916

00:24:39.164 --> 00:24:40.605 brain differences at baseline in  
NOTE Confidence: 0.9324916

00:24:40.605 --> 00:24:42.125 two year and the change

NOTE Confidence: 0.9324916

00:24:42.125 --> 00:24:43.325 in those, and then is

NOTE Confidence: 0.9324916

00:24:43.325 --> 00:24:45.265 that associated with future behavior.

NOTE Confidence: 0.99020964

00:24:46.284 --> 00:24:47.984 And we do find several

NOTE Confidence: 0.99020964

00:24:48.125 --> 00:24:50.149 interesting associations. So what you're

NOTE Confidence: 0.99020964

00:24:50.149 --> 00:24:51.269 looking at at the dotted

NOTE Confidence: 0.99020964

00:24:51.269 --> 00:24:51.769 line

NOTE Confidence: 0.84981906

00:24:52.149 --> 00:24:52.390 is,

NOTE Confidence: 0.9341894

00:24:53.350 --> 00:24:55.029 FDR correction across all of

NOTE Confidence: 0.9341894

00:24:55.029 --> 00:24:56.010 the tests run.

NOTE Confidence: 0.9917794

00:24:56.470 --> 00:24:58.390 And then underneath this, anything

NOTE Confidence: 0.9917794

00:24:58.390 --> 00:24:59.690 that is bolded,

NOTE Confidence: 0.97957677

00:25:00.149 --> 00:25:01.929 in a circle is representing,

NOTE Confidence: 0.95869017

00:25:02.390 --> 00:25:04.330 FDR correction within that modality.

NOTE Confidence: 0.9725352

00:25:05.125 --> 00:25:06.164 Because one can argue these

NOTE Confidence: 0.9725352

00:25:06.164 --> 00:25:07.605 are different questions. Right? White

NOTE Confidence: 0.9725352

00:25:07.605 --> 00:25:08.804 matter looking at white matter  
NOTE Confidence: 0.9725352

00:25:08.804 --> 00:25:10.484 differences and DTI or something  
NOTE Confidence: 0.9725352

00:25:10.484 --> 00:25:11.445 is very different than looking  
NOTE Confidence: 0.9725352

00:25:11.445 --> 00:25:12.565 at gray matter differences or  
NOTE Confidence: 0.9725352

00:25:12.565 --> 00:25:13.865 resting state functional connectivity.  
NOTE Confidence: 0.9802357

00:25:14.885 --> 00:25:15.284 So,  
NOTE Confidence: 0.89727396

00:25:15.765 --> 00:25:17.205 and look at you could  
NOTE Confidence: 0.89727396

00:25:17.205 --> 00:25:19.044 consider these lower threshold of  
NOTE Confidence: 0.89727396

00:25:19.044 --> 00:25:20.940 significance, but also showing differences.  
NOTE Confidence: 0.99460506

00:25:21.820 --> 00:25:22.619 There are a couple of  
NOTE Confidence: 0.99460506

00:25:22.619 --> 00:25:24.059 findings I wanna just highlight  
NOTE Confidence: 0.99460506

00:25:24.059 --> 00:25:25.259 here, and then we'll focus  
NOTE Confidence: 0.99460506

00:25:25.259 --> 00:25:25.980 on a couple of them  
NOTE Confidence: 0.99460506

00:25:25.980 --> 00:25:27.100 that are showing some longitudinal  
NOTE Confidence: 0.99460506

00:25:27.100 --> 00:25:27.600 mediation.  
NOTE Confidence: 0.96950996

00:25:28.059 --> 00:25:29.019 One is there is this

NOTE Confidence: 0.96950996  
00:25:29.019 --> 00:25:31.119 interesting difference associated with the  
NOTE Confidence: 0.96950996  
00:25:31.179 --> 00:25:32.700 resting state functional connectivity. So  
NOTE Confidence: 0.96950996  
00:25:32.700 --> 00:25:34.000 this is looking at how  
NOTE Confidence: 0.96732104  
00:25:34.365 --> 00:25:36.305 functional activity measured with fMRI  
NOTE Confidence: 0.98961926  
00:25:36.765 --> 00:25:38.205 in one area is correlating  
NOTE Confidence: 0.98961926  
00:25:38.205 --> 00:25:39.484 with other other areas of  
NOTE Confidence: 0.98961926  
00:25:39.484 --> 00:25:40.765 the brain. So you're not  
NOTE Confidence: 0.98961926  
00:25:40.765 --> 00:25:41.885 looking at response to anything.  
NOTE Confidence: 0.98961926  
00:25:41.885 --> 00:25:42.845 You're just looking at how  
NOTE Confidence: 0.98961926  
00:25:42.845 --> 00:25:44.285 these areas are tracking together  
NOTE Confidence: 0.98961926  
00:25:44.285 --> 00:25:45.105 in their activity.  
NOTE Confidence: 0.9133264  
00:25:45.565 --> 00:25:46.525 And the interesting thing we  
NOTE Confidence: 0.9133264  
00:25:46.525 --> 00:25:47.984 found here was that the  
NOTE Confidence: 0.9133264  
00:25:48.205 --> 00:25:50.220 auditory network, this broader,  
NOTE Confidence: 0.917795  
00:25:50.619 --> 00:25:52.380 network associated with auditory processing  
NOTE Confidence: 0.917795

00:25:52.380 --> 00:25:54.220 was showing increased connectivity among

NOTE Confidence: 0.917795

00:25:54.220 --> 00:25:55.820 those with prenatal cannabis exposure

NOTE Confidence: 0.917795

00:25:55.820 --> 00:25:56.960 with the left, putamen.

NOTE Confidence: 0.979428

00:25:58.220 --> 00:25:59.420 I find this this is

NOTE Confidence: 0.979428

00:25:59.420 --> 00:26:00.960 all, you know, kind of

NOTE Confidence: 0.9861791

00:26:01.385 --> 00:26:02.265 I I find this somewhat

NOTE Confidence: 0.9861791

00:26:02.265 --> 00:26:03.565 interesting just because of

NOTE Confidence: 0.9798406

00:26:03.945 --> 00:26:05.725 some tangential evidence in schizophrenia,

NOTE Confidence: 0.9926474

00:26:06.585 --> 00:26:08.505 linking these, for example, to

NOTE Confidence: 0.9926474

00:26:08.505 --> 00:26:10.125 hallucinations and and schizophrenia

NOTE Confidence: 0.97170967

00:26:10.425 --> 00:26:11.385 risk in some ways. So

NOTE Confidence: 0.97170967

00:26:11.385 --> 00:26:12.425 it I think there could

NOTE Confidence: 0.97170967

00:26:12.425 --> 00:26:13.305 be something there, but we're

NOTE Confidence: 0.97170967

00:26:13.305 --> 00:26:14.400 not seeing that, you know,

NOTE Confidence: 0.97170967

00:26:14.480 --> 00:26:15.200 by any stretch of the

NOTE Confidence: 0.97170967

00:26:15.200 --> 00:26:16.640 imagination here, but I thought

NOTE Confidence: 0.97170967  
00:26:16.640 --> 00:26:17.940 it was an interesting finding.  
NOTE Confidence: 0.97970927  
00:26:18.480 --> 00:26:19.359 And then the other big  
NOTE Confidence: 0.97970927  
00:26:19.359 --> 00:26:20.240 thing I wanted to point  
NOTE Confidence: 0.97970927  
00:26:20.240 --> 00:26:22.560 out is that DTI measures  
NOTE Confidence: 0.97970927  
00:26:22.560 --> 00:26:24.480 or diffusion tensor weighted imaging  
NOTE Confidence: 0.97970927  
00:26:24.480 --> 00:26:24.980 measures,  
NOTE Confidence: 0.9752227  
00:26:25.440 --> 00:26:27.200 this is generally track tracking  
NOTE Confidence: 0.9752227  
00:26:27.200 --> 00:26:28.740 white matter, integrity,  
NOTE Confidence: 0.9528251  
00:26:29.119 --> 00:26:29.865 but but then it can  
NOTE Confidence: 0.9528251  
00:26:29.865 --> 00:26:32.025 also track some putative indices  
NOTE Confidence: 0.9528251  
00:26:32.025 --> 00:26:32.605 of neuroinflammation,  
NOTE Confidence: 0.957396  
00:26:32.984 --> 00:26:34.744 particular in gray matter. And  
NOTE Confidence: 0.957396  
00:26:34.744 --> 00:26:35.785 that's where we're finding the  
NOTE Confidence: 0.957396  
00:26:35.785 --> 00:26:37.165 enrichment of these findings.  
NOTE Confidence: 0.9861762  
00:26:37.865 --> 00:26:38.905 So I do think this  
NOTE Confidence: 0.9861762

00:26:38.905 --> 00:26:40.025 could nicely align with some  
NOTE Confidence: 0.9861762

00:26:40.025 --> 00:26:41.085 of these, you know, nonhuman  
NOTE Confidence: 0.9861762

00:26:41.145 --> 00:26:42.600 animal models and, you know,  
NOTE Confidence: 0.9861762

00:26:42.760 --> 00:26:44.359 emphasizing axonal guidance systems and  
NOTE Confidence: 0.9861762

00:26:44.359 --> 00:26:45.020 the like,  
NOTE Confidence: 0.9594021

00:26:45.799 --> 00:26:47.080 and could potentially align with  
NOTE Confidence: 0.9594021

00:26:47.080 --> 00:26:49.080 that. So all the DTI  
NOTE Confidence: 0.9594021

00:26:49.080 --> 00:26:50.919 and RSI measures are these  
NOTE Confidence: 0.9594021

00:26:50.919 --> 00:26:52.480 diffusion weighted imaging measures that  
NOTE Confidence: 0.9594021

00:26:52.480 --> 00:26:53.720 are gonna be reflecting how  
NOTE Confidence: 0.9594021

00:26:53.720 --> 00:26:55.020 the white matter is structured,  
NOTE Confidence: 0.9594021

00:26:55.320 --> 00:26:56.859 and then also some indices  
NOTE Confidence: 0.9594021

00:26:57.000 --> 00:26:58.405 of, you know, could be  
NOTE Confidence: 0.9594021

00:26:58.405 --> 00:26:59.845 things like neurodensities in some  
NOTE Confidence: 0.9594021

00:26:59.845 --> 00:27:01.125 gray matter areas as well  
NOTE Confidence: 0.9594021

00:27:01.125 --> 00:27:02.505 as white matter density there,

NOTE Confidence: 0.9594021

00:27:02.645 --> 00:27:04.565 but also some, inflammation related

NOTE Confidence: 0.9594021

00:27:04.565 --> 00:27:06.405 cellularity, particularly in the RSI

NOTE Confidence: 0.9594021

00:27:06.405 --> 00:27:07.525 measures. So I wanna walk

NOTE Confidence: 0.9594021

00:27:07.525 --> 00:27:08.405 through a couple of these

NOTE Confidence: 0.9594021

00:27:08.405 --> 00:27:10.405 findings in a little, greater

NOTE Confidence: 0.9594021

00:27:10.405 --> 00:27:10.905 detail.

NOTE Confidence: 0.9852337

00:27:12.210 --> 00:27:13.090 So the next thing we

NOTE Confidence: 0.9852337

00:27:13.090 --> 00:27:13.970 did was we looked at

NOTE Confidence: 0.9852337

00:27:13.970 --> 00:27:14.850 all of these correlates that

NOTE Confidence: 0.9852337

00:27:14.850 --> 00:27:16.369 were significantly associated with this

NOTE Confidence: 0.9852337

00:27:16.369 --> 00:27:17.970 after, you know, multiple testing

NOTE Confidence: 0.9852337

00:27:17.970 --> 00:27:19.410 correction. We said, are they

NOTE Confidence: 0.9852337

00:27:19.410 --> 00:27:21.170 associated with future behavior in

NOTE Confidence: 0.9852337

00:27:21.170 --> 00:27:22.770 these kids? And we do

NOTE Confidence: 0.9852337

00:27:22.770 --> 00:27:24.369 find that they are. We've

NOTE Confidence: 0.9852337

00:27:24.530 --> 00:27:25.410 there are about eight of  
NOTE Confidence: 0.9852337

00:27:25.410 --> 00:27:26.865 them that are, but there  
NOTE Confidence: 0.9852337

00:27:26.865 --> 00:27:28.705 were four of them that  
NOTE Confidence: 0.9852337

00:27:28.705 --> 00:27:30.725 are actually mediating future behavior.  
NOTE Confidence: 0.99236673

00:27:31.025 --> 00:27:31.984 And it's in the direction  
NOTE Confidence: 0.99236673

00:27:31.984 --> 00:27:32.885 that you'd expect.  
NOTE Confidence: 0.97644734

00:27:33.265 --> 00:27:35.105 So, you know, any prenatal  
NOTE Confidence: 0.97644734

00:27:35.105 --> 00:27:36.785 cannabis exposure is associated with  
NOTE Confidence: 0.97644734

00:27:36.785 --> 00:27:38.225 these differences in restricted total  
NOTE Confidence: 0.97644734

00:27:38.225 --> 00:27:39.925 diffusion as well as transverse  
NOTE Confidence: 0.97644734

00:27:39.984 --> 00:27:41.685 diffusivity in the pars granularis.  
NOTE Confidence: 0.96443725

00:27:42.320 --> 00:27:43.520 And these are in turn  
NOTE Confidence: 0.96443725

00:27:43.520 --> 00:27:44.660 associated with future,  
NOTE Confidence: 0.9940258

00:27:45.760 --> 00:27:47.520 externalizing behavior. The biggest hits  
NOTE Confidence: 0.9940258

00:27:47.520 --> 00:27:49.520 were for ADHD related problems  
NOTE Confidence: 0.9940258

00:27:49.520 --> 00:27:50.420 in these kids.

NOTE Confidence: 0.9856377

00:27:50.800 --> 00:27:52.000 So I wanna just walk

NOTE Confidence: 0.9856377

00:27:52.000 --> 00:27:53.220 through some of our interpretations

NOTE Confidence: 0.9856377

00:27:53.359 --> 00:27:54.660 of what this could mean.

NOTE Confidence: 0.9996432

00:27:55.040 --> 00:27:55.540 So

NOTE Confidence: 0.9404184

00:27:55.994 --> 00:27:58.655 isotropic diffusion or nondirectionally dependent

NOTE Confidence: 0.9404184

00:27:58.715 --> 00:27:59.215 diffusion,

NOTE Confidence: 0.9970325

00:28:00.315 --> 00:28:01.595 has been postulated to be

NOTE Confidence: 0.9970325

00:28:01.595 --> 00:28:03.055 a potential marker of neuroinflammation.

NOTE Confidence: 0.9891174

00:28:04.075 --> 00:28:05.435 And in particular, when there

NOTE Confidence: 0.9891174

00:28:05.435 --> 00:28:07.195 are increases in mean and

NOTE Confidence: 0.9891174

00:28:07.195 --> 00:28:07.695 transverse

NOTE Confidence: 0.9921776

00:28:08.050 --> 00:28:09.650 cortical diffusivity, so in these

NOTE Confidence: 0.9921776

00:28:09.650 --> 00:28:10.710 cortical regions,

NOTE Confidence: 0.9904501

00:28:11.250 --> 00:28:13.270 and restrict reduced restrictions

NOTE Confidence: 0.9245506

00:28:13.570 --> 00:28:15.730 in directional and total diffusion

NOTE Confidence: 0.9245506

00:28:15.730 --> 00:28:16.790 of white matter bundles,  
NOTE Confidence: 0.99926734

00:28:17.730 --> 00:28:19.350 that is typically thought  
NOTE Confidence: 0.9979439

00:28:19.650 --> 00:28:21.190 to be a sign of  
NOTE Confidence: 0.9979439

00:28:21.250 --> 00:28:21.990 of neuroinflammation.  
NOTE Confidence: 0.97505456

00:28:22.894 --> 00:28:24.335 So what we actually find  
NOTE Confidence: 0.97505456

00:28:24.335 --> 00:28:25.455 is the opposite of this.  
NOTE Confidence: 0.97505456

00:28:25.455 --> 00:28:27.634 We find reduced isotropic diffusion,  
NOTE Confidence: 0.97505456

00:28:27.774 --> 00:28:29.215 less diffusion in these these  
NOTE Confidence: 0.97505456

00:28:29.215 --> 00:28:30.115 broad areas.  
NOTE Confidence: 0.9644859

00:28:30.494 --> 00:28:32.514 And so that could putatively  
NOTE Confidence: 0.9644859

00:28:32.654 --> 00:28:34.034 reflect less neuroinflammation  
NOTE Confidence: 0.9856747

00:28:34.494 --> 00:28:36.274 associated with prenatal cannabis exposure.  
NOTE Confidence: 0.9970643

00:28:37.134 --> 00:28:38.014 And, you know, some of  
NOTE Confidence: 0.9970643

00:28:38.014 --> 00:28:38.754 these pruning  
NOTE Confidence: 0.9831664

00:28:39.270 --> 00:28:40.390 mechanisms that occur to help,  
NOTE Confidence: 0.9831664

00:28:40.390 --> 00:28:41.050 you know,

NOTE Confidence: 0.992587  
00:28:41.670 --> 00:28:42.410 take away,  
NOTE Confidence: 0.9861182  
00:28:42.790 --> 00:28:44.490 you know, ipsilateral connections,  
NOTE Confidence: 0.9145105  
00:28:45.030 --> 00:28:46.390 in retinal development and all  
NOTE Confidence: 0.9145105  
00:28:46.390 --> 00:28:47.590 those have been well identified  
NOTE Confidence: 0.9145105  
00:28:47.590 --> 00:28:48.250 and characterized,  
NOTE Confidence: 0.9068131  
00:28:48.870 --> 00:28:49.830 with regard to risk in  
NOTE Confidence: 0.9068131  
00:28:49.830 --> 00:28:50.330 schizophrenia.  
NOTE Confidence: 0.9959389  
00:28:51.190 --> 00:28:52.230 So it's possible that, you  
NOTE Confidence: 0.9959389  
00:28:52.230 --> 00:28:53.215 know, too much or too  
NOTE Confidence: 0.9959389  
00:28:53.215 --> 00:28:54.495 little here could have have  
NOTE Confidence: 0.9959389  
00:28:54.495 --> 00:28:55.774 problems for, you know, early  
NOTE Confidence: 0.9959389  
00:28:55.774 --> 00:28:56.274 neurodevelopment.  
NOTE Confidence: 0.99373853  
00:28:57.135 --> 00:28:58.514 And then the other possibility  
NOTE Confidence: 0.99373853  
00:28:58.654 --> 00:28:59.855 that that we see, you  
NOTE Confidence: 0.99373853  
00:28:59.855 --> 00:29:01.294 know, this collection of findings  
NOTE Confidence: 0.99373853

00:29:01.294 --> 00:29:01.955 could indicate  
NOTE Confidence: 0.9237079

00:29:02.414 --> 00:29:03.394 is that when there's  
NOTE Confidence: 0.9745515

00:29:04.335 --> 00:29:06.115 this decreases or reduced  
NOTE Confidence: 0.70593363

00:29:06.480 --> 00:29:08.160 cortical transfused diffused diffused that  
NOTE Confidence: 0.70593363

00:29:08.160 --> 00:29:09.220 you said this would be  
NOTE Confidence: 0.70593363

00:29:09.280 --> 00:29:10.420 along these lines  
NOTE Confidence: 0.63963014

00:29:10.880 --> 00:29:11.380 and,  
NOTE Confidence: 0.91290295

00:29:13.440 --> 00:29:15.860 increases in restricted directional diffusion,  
NOTE Confidence: 0.95528156

00:29:16.160 --> 00:29:17.120 so on these these white  
NOTE Confidence: 0.95528156

00:29:17.120 --> 00:29:18.400 matter tracts that are developing  
NOTE Confidence: 0.95528156

00:29:18.400 --> 00:29:19.220 during adolescence,  
NOTE Confidence: 0.9719864

00:29:19.895 --> 00:29:20.934 there is some evidence that  
NOTE Confidence: 0.9719864

00:29:20.934 --> 00:29:22.455 that pattern generally will be  
NOTE Confidence: 0.9719864

00:29:22.455 --> 00:29:25.434 occurring as adolescence progresses progresses.  
NOTE Confidence: 0.9751768

00:29:26.215 --> 00:29:27.815 So another possibility of these  
NOTE Confidence: 0.9751768

00:29:27.815 --> 00:29:29.575 findings collectively, we think, is

NOTE Confidence: 0.9751768

00:29:29.575 --> 00:29:31.115 that this could reflect accelerated

NOTE Confidence: 0.9751768

00:29:31.255 --> 00:29:31.755 neurodevelopment

NOTE Confidence: 0.97573143

00:29:32.135 --> 00:29:33.495 among these kids that have

NOTE Confidence: 0.97573143

00:29:33.495 --> 00:29:35.550 prenatal cannabis exposure. And there's

NOTE Confidence: 0.97573143

00:29:35.550 --> 00:29:37.150 some anecdotal, you know, data

NOTE Confidence: 0.97573143

00:29:37.150 --> 00:29:38.270 that could be consistent with

NOTE Confidence: 0.97573143

00:29:38.270 --> 00:29:39.630 that. You know, sometimes you'll

NOTE Confidence: 0.97573143

00:29:39.630 --> 00:29:41.150 see that kids with older

NOTE Confidence: 0.97573143

00:29:41.150 --> 00:29:42.270 friends are more likely to

NOTE Confidence: 0.97573143

00:29:42.270 --> 00:29:43.870 engage in cannabis use perhaps

NOTE Confidence: 0.97573143

00:29:43.870 --> 00:29:45.010 due to a greater exposure.

NOTE Confidence: 0.948089

00:29:45.310 --> 00:29:46.750 Sometimes we even see greater,

NOTE Confidence: 0.99562454

00:29:47.230 --> 00:29:48.750 language abilities in kids who

NOTE Confidence: 0.99562454

00:29:48.750 --> 00:29:50.510 are engaging in substance use

NOTE Confidence: 0.99562454

00:29:50.510 --> 00:29:51.010 earlier.

NOTE Confidence: 0.95094603

00:29:51.525 --> 00:29:52.645 So it it could be  
NOTE Confidence: 0.95094603

00:29:52.645 --> 00:29:53.685 associated with those things, but,  
NOTE Confidence: 0.95094603

00:29:53.685 --> 00:29:54.885 you know, we're just starting  
NOTE Confidence: 0.95094603

00:29:54.885 --> 00:29:56.165 to explore these relationships. So  
NOTE Confidence: 0.95094603

00:29:56.165 --> 00:29:57.605 it I'd welcome also other  
NOTE Confidence: 0.95094603

00:29:57.605 --> 00:29:59.045 ideas that that people may  
NOTE Confidence: 0.95094603

00:29:59.045 --> 00:29:59.545 have.  
NOTE Confidence: 0.9879573

00:30:01.285 --> 00:30:02.565 Alright. So before moving on  
NOTE Confidence: 0.9879573

00:30:02.565 --> 00:30:03.285 to some of our cuddle  
NOTE Confidence: 0.9879573

00:30:03.285 --> 00:30:04.165 work, I I do wanna  
NOTE Confidence: 0.9879573

00:30:04.165 --> 00:30:05.525 just highlight some limitations and  
NOTE Confidence: 0.9879573

00:30:05.525 --> 00:30:06.985 challenges to this work overhaul.  
NOTE Confidence: 0.95388865

00:30:07.600 --> 00:30:09.120 One is in the ABCD  
NOTE Confidence: 0.95388865

00:30:09.120 --> 00:30:10.580 study, we're relying on retrospective  
NOTE Confidence: 0.95388865

00:30:10.639 --> 00:30:12.019 report of use during pregnancy  
NOTE Confidence: 0.95388865

00:30:12.080 --> 00:30:12.580 only.

NOTE Confidence: 0.9715647  
00:30:13.279 --> 00:30:14.240 You know, as I've shared  
NOTE Confidence: 0.9715647  
00:30:14.240 --> 00:30:14.880 with you from some of  
NOTE Confidence: 0.9715647  
00:30:14.880 --> 00:30:15.679 the New York Times stuff  
NOTE Confidence: 0.9715647  
00:30:15.679 --> 00:30:16.480 and and the like, it  
NOTE Confidence: 0.9715647  
00:30:16.480 --> 00:30:17.360 does seem like people are  
NOTE Confidence: 0.9715647  
00:30:17.360 --> 00:30:19.519 not unwilling to necessarily admit  
NOTE Confidence: 0.9715647  
00:30:19.519 --> 00:30:20.395 this, and we're we're seeing  
NOTE Confidence: 0.9715647  
00:30:20.395 --> 00:30:20.955 that in a lot of  
NOTE Confidence: 0.9715647  
00:30:20.955 --> 00:30:22.075 our other data and that  
NOTE Confidence: 0.9715647  
00:30:22.075 --> 00:30:23.515 our self report data really  
NOTE Confidence: 0.9715647  
00:30:23.515 --> 00:30:25.135 tend to align with biological  
NOTE Confidence: 0.9715647  
00:30:25.275 --> 00:30:26.875 data of, you know, urine  
NOTE Confidence: 0.9715647  
00:30:26.875 --> 00:30:27.695 drug testing,  
NOTE Confidence: 0.99196875  
00:30:28.635 --> 00:30:30.495 or even umbilical cord tissue,  
NOTE Confidence: 0.9651458  
00:30:30.955 --> 00:30:32.315 as well, which is probably  
NOTE Confidence: 0.9651458

00:30:32.315 --> 00:30:33.695 the best way to characterize  
NOTE Confidence: 0.9651458

00:30:33.755 --> 00:30:34.575 this in reality.  
NOTE Confidence: 0.99393815

00:30:35.515 --> 00:30:36.899 And there are some data  
NOTE Confidence: 0.99393815

00:30:36.899 --> 00:30:37.480 that they've  
NOTE Confidence: 0.9501477

00:30:38.100 --> 00:30:39.620 of pregnancy studies where they've  
NOTE Confidence: 0.9501477

00:30:39.620 --> 00:30:41.299 assessed them during pregnancy and  
NOTE Confidence: 0.9501477

00:30:41.299 --> 00:30:42.740 asked for what medications they're  
NOTE Confidence: 0.9501477

00:30:42.740 --> 00:30:43.240 using  
NOTE Confidence: 0.94064003

00:30:43.700 --> 00:30:45.380 and substances they use, and  
NOTE Confidence: 0.94064003

00:30:45.380 --> 00:30:46.260 then they asked them, like,  
NOTE Confidence: 0.94064003

00:30:46.260 --> 00:30:47.639 five and ten years later.  
NOTE Confidence: 0.94064003

00:30:47.779 --> 00:30:48.659 And they actually do find  
NOTE Confidence: 0.94064003

00:30:48.659 --> 00:30:50.200 those to be relatively correlated.  
NOTE Confidence: 0.95308656

00:30:51.015 --> 00:30:52.055 So I think there's some  
NOTE Confidence: 0.95308656

00:30:52.055 --> 00:30:53.255 evidence to suggest that perhaps  
NOTE Confidence: 0.95308656

00:30:53.255 --> 00:30:55.255 during pregnancy, we're more attuned

NOTE Confidence: 0.95308656

00:30:55.255 --> 00:30:56.295 to what is being used

NOTE Confidence: 0.95308656

00:30:56.295 --> 00:30:57.095 and all of those sorts

NOTE Confidence: 0.95308656

00:30:57.095 --> 00:30:58.155 of things in this retrospective

NOTE Confidence: 0.95308656

00:30:58.215 --> 00:30:59.255 report. Maybe accurate, but I

NOTE Confidence: 0.95308656

00:30:59.255 --> 00:30:59.895 I do think it's a

NOTE Confidence: 0.95308656

00:30:59.895 --> 00:31:01.095 problem. Right? And I don't

NOTE Confidence: 0.95308656

00:31:01.095 --> 00:31:02.295 think there's an easy solution

NOTE Confidence: 0.95308656

00:31:02.295 --> 00:31:03.630 to this, because some of

NOTE Confidence: 0.95308656

00:31:03.630 --> 00:31:05.150 the testing differences associated with

NOTE Confidence: 0.95308656

00:31:05.150 --> 00:31:06.110 urine and how long some

NOTE Confidence: 0.95308656

00:31:06.110 --> 00:31:07.310 of these, you know, substrates

NOTE Confidence: 0.95308656

00:31:07.310 --> 00:31:08.190 stay and how it's associated

NOTE Confidence: 0.95308656

00:31:08.190 --> 00:31:09.390 with BMI and adiposity and

NOTE Confidence: 0.95308656

00:31:09.390 --> 00:31:10.690 all of those things. Right?

NOTE Confidence: 0.95308656

00:31:10.830 --> 00:31:12.030 So I think the biological

NOTE Confidence: 0.95308656

00:31:12.030 --> 00:31:12.990 data is gonna be great  
NOTE Confidence: 0.95308656

00:31:12.990 --> 00:31:14.930 for capturing regular chronic use,  
NOTE Confidence: 0.9140144

00:31:15.245 --> 00:31:16.065 but, you know, in a  
NOTE Confidence: 0.9140144

00:31:16.205 --> 00:31:17.245 interspersed use, it may not  
NOTE Confidence: 0.9140144

00:31:17.245 --> 00:31:18.625 be the gold standard necessarily  
NOTE Confidence: 0.9140144

00:31:18.765 --> 00:31:19.265 either.  
NOTE Confidence: 0.92329293

00:31:20.205 --> 00:31:21.005 Another thing is there's a  
NOTE Confidence: 0.92329293

00:31:21.005 --> 00:31:22.465 large temporal gap here. Right?  
NOTE Confidence: 0.92329293

00:31:22.765 --> 00:31:24.285 There's ten years between the  
NOTE Confidence: 0.92329293

00:31:24.285 --> 00:31:25.325 behavior we're looking at and  
NOTE Confidence: 0.92329293

00:31:25.325 --> 00:31:26.685 the brain differences we're looking  
NOTE Confidence: 0.92329293

00:31:26.685 --> 00:31:27.820 at, and it's likely that,  
NOTE Confidence: 0.92329293

00:31:27.820 --> 00:31:28.700 you know, you know, have  
NOTE Confidence: 0.92329293

00:31:28.700 --> 00:31:29.900 this exposure associated with a  
NOTE Confidence: 0.92329293

00:31:29.900 --> 00:31:30.880 lot of those things  
NOTE Confidence: 0.9706141

00:31:31.260 --> 00:31:32.460 that, you know, could be

NOTE Confidence: 0.9706141

00:31:32.460 --> 00:31:33.260 making this seem like a

NOTE Confidence: 0.9706141

00:31:33.260 --> 00:31:34.780 potential causal influence that isn't

NOTE Confidence: 0.9706141

00:31:34.780 --> 00:31:35.820 there. We have done some

NOTE Confidence: 0.9706141

00:31:35.820 --> 00:31:37.340 subsequent analysis where we've covariate

NOTE Confidence: 0.9706141

00:31:37.340 --> 00:31:38.780 for parenting styles and those

NOTE Confidence: 0.9706141

00:31:38.780 --> 00:31:39.660 sorts of things, and we

NOTE Confidence: 0.9706141

00:31:39.660 --> 00:31:41.100 still find the relationship there.

NOTE Confidence: 0.9706141

00:31:41.100 --> 00:31:42.565 But, obviously, what we really

NOTE Confidence: 0.9706141

00:31:42.565 --> 00:31:43.285 need to do is follow

NOTE Confidence: 0.9706141

00:31:43.285 --> 00:31:44.325 them during this period of

NOTE Confidence: 0.9706141

00:31:44.325 --> 00:31:45.845 time and and, you know,

NOTE Confidence: 0.9706141

00:31:45.845 --> 00:31:46.885 try to, you know, better

NOTE Confidence: 0.9706141

00:31:46.885 --> 00:31:47.765 account for some of these

NOTE Confidence: 0.9706141

00:31:47.765 --> 00:31:48.905 these temporal plausibility

NOTE Confidence: 0.9512551

00:31:49.205 --> 00:31:49.705 plausibility.

NOTE Confidence: 0.9200302

00:31:50.485 --> 00:31:52.005 I wanna be, you know,  
NOTE Confidence: 0.9200302

00:31:52.005 --> 00:31:53.605 very clear. While these data  
NOTE Confidence: 0.9200302

00:31:53.605 --> 00:31:54.965 by accounting for these confounders  
NOTE Confidence: 0.9200302

00:31:54.965 --> 00:31:56.810 that increase the possibility there  
NOTE Confidence: 0.9200302

00:31:56.810 --> 00:31:58.030 could be causal effects,  
NOTE Confidence: 0.9757347

00:31:58.490 --> 00:31:59.850 they're we're not demonstrating that  
NOTE Confidence: 0.9757347

00:31:59.850 --> 00:32:00.890 at all. These are just  
NOTE Confidence: 0.9757347

00:32:00.890 --> 00:32:01.390 associations.  
NOTE Confidence: 0.9601029

00:32:02.090 --> 00:32:03.790 And then lastly, in ABCD,  
NOTE Confidence: 0.9601029

00:32:03.850 --> 00:32:04.970 despite being a relatively large  
NOTE Confidence: 0.9601029

00:32:04.970 --> 00:32:06.170 sample, we still do have  
NOTE Confidence: 0.9601029

00:32:06.170 --> 00:32:08.054 relatively small numbers of, children  
NOTE Confidence: 0.9601029

00:32:08.054 --> 00:32:09.575 who are exposed. And, you  
NOTE Confidence: 0.9601029

00:32:09.575 --> 00:32:10.615 know, these system and more  
NOTE Confidence: 0.9601029

00:32:10.615 --> 00:32:13.095 molecular level, mechanisms remain really  
NOTE Confidence: 0.9601029

00:32:13.095 --> 00:32:13.995 poorly understood.

NOTE Confidence: 0.9704371

00:32:15.095 --> 00:32:16.215 So in conclusion, there is

NOTE Confidence: 0.9704371

00:32:16.215 --> 00:32:17.414 a small increase in risk

NOTE Confidence: 0.9704371

00:32:17.414 --> 00:32:19.174 for adverse behavioral outcomes in

NOTE Confidence: 0.9704371

00:32:19.174 --> 00:32:19.674 childhood,

NOTE Confidence: 0.9418158

00:32:20.240 --> 00:32:21.680 Whether this represents causal shared

NOTE Confidence: 0.9418158

00:32:21.680 --> 00:32:23.300 predisposition and or epiphenomenon

NOTE Confidence: 0.99237305

00:32:23.760 --> 00:32:24.720 in some way is really

NOTE Confidence: 0.99237305

00:32:24.720 --> 00:32:25.220 unclear.

NOTE Confidence: 0.9894185

00:32:25.920 --> 00:32:27.120 The neural correlates, we are

NOTE Confidence: 0.9894185

00:32:27.120 --> 00:32:28.560 seeing that structural and functional

NOTE Confidence: 0.9894185

00:32:28.560 --> 00:32:30.820 connectivity metrics do partially longitudinally

NOTE Confidence: 0.9894185

00:32:31.040 --> 00:32:32.340 mediate this as well.

NOTE Confidence: 0.9921821

00:32:33.235 --> 00:32:34.434 So, you know, this could

NOTE Confidence: 0.9921821

00:32:34.434 --> 00:32:35.895 reflect accelerated neurodevelopmental

NOTE Confidence: 0.8916343

00:32:36.595 --> 00:32:38.375 development. It could reflect reduced

NOTE Confidence: 0.88990885

00:32:39.075 --> 00:32:40.914 inflammation and neural inflammation in  
NOTE Confidence: 0.88990885

00:32:40.914 --> 00:32:42.674 particular during early,  
NOTE Confidence: 0.97855985

00:32:42.995 --> 00:32:43.815 child development.  
NOTE Confidence: 0.9456302

00:32:45.120 --> 00:32:46.480 But, you know, the what's  
NOTE Confidence: 0.9456302

00:32:46.480 --> 00:32:47.440 causing that is unclear, but  
NOTE Confidence: 0.9456302

00:32:47.440 --> 00:32:48.559 I do find it quite  
NOTE Confidence: 0.9456302

00:32:48.559 --> 00:32:49.520 interesting that we are seeing  
NOTE Confidence: 0.9456302

00:32:49.520 --> 00:32:51.280 these these mediational pathways where  
NOTE Confidence: 0.9456302

00:32:51.280 --> 00:32:52.480 it's being associated with both  
NOTE Confidence: 0.9456302

00:32:52.480 --> 00:32:53.460 exposure and,  
NOTE Confidence: 0.9838318

00:32:54.240 --> 00:32:55.600 the the future behavior in  
NOTE Confidence: 0.9838318

00:32:55.600 --> 00:32:56.340 these kids.  
NOTE Confidence: 0.98583645

00:32:58.045 --> 00:32:58.845 And there are some other  
NOTE Confidence: 0.98583645

00:32:58.845 --> 00:32:59.805 data that do kind of  
NOTE Confidence: 0.98583645

00:32:59.805 --> 00:33:01.805 align with this idea of  
NOTE Confidence: 0.98583645

00:33:01.805 --> 00:33:03.185 inflammation in some ways.

NOTE Confidence: 0.98677933

00:33:03.565 --> 00:33:04.605 What you're looking at here

NOTE Confidence: 0.98677933

00:33:04.605 --> 00:33:05.825 are data from a TPSO

NOTE Confidence: 0.98677933

00:33:05.885 --> 00:33:07.025 PET ligand study.

NOTE Confidence: 0.99922156

00:33:07.405 --> 00:33:08.225 So TPSO

NOTE Confidence: 0.9717972

00:33:08.605 --> 00:33:10.365 is a a mitochondrial gene

NOTE Confidence: 0.9717972

00:33:10.365 --> 00:33:11.505 that's expressed in

NOTE Confidence: 0.9540633

00:33:13.100 --> 00:33:14.380 and it is expressed alongside

NOTE Confidence: 0.9540633

00:33:14.380 --> 00:33:16.300 microglial activity. So microglia are

NOTE Confidence: 0.9540633

00:33:16.300 --> 00:33:18.140 the, you know, immune centers

NOTE Confidence: 0.9540633

00:33:18.140 --> 00:33:18.700 of the of the of

NOTE Confidence: 0.9540633

00:33:18.700 --> 00:33:19.900 the brain and among many

NOTE Confidence: 0.9540633

00:33:19.900 --> 00:33:20.640 other functions.

NOTE Confidence: 0.99539316

00:33:21.020 --> 00:33:22.300 But this is looking at,

NOTE Confidence: 0.99539316

00:33:22.540 --> 00:33:24.400 this putative index of neuroinflammation

NOTE Confidence: 0.9362128

00:33:24.700 --> 00:33:25.580 and a small sample of

NOTE Confidence: 0.9362128

00:33:25.580 --> 00:33:26.860 around twenty five ish or  
NOTE Confidence: 0.9362128

00:33:26.860 --> 00:33:27.360 so,  
NOTE Confidence: 0.9680469

00:33:27.855 --> 00:33:29.795 regular cannabis users and controls.  
NOTE Confidence: 0.9680469

00:33:30.095 --> 00:33:31.535 And across brain regions, what  
NOTE Confidence: 0.9680469

00:33:31.535 --> 00:33:32.975 you can essentially see is  
NOTE Confidence: 0.9680469

00:33:32.975 --> 00:33:34.035 in those who are  
NOTE Confidence: 0.9626859

00:33:34.415 --> 00:33:35.935 long term users on the  
NOTE Confidence: 0.9626859

00:33:35.935 --> 00:33:37.055 left, as well as those  
NOTE Confidence: 0.9626859

00:33:37.055 --> 00:33:38.655 with a quantified problem of  
NOTE Confidence: 0.9626859

00:33:38.655 --> 00:33:40.015 use with cannabis use disorder  
NOTE Confidence: 0.9626859

00:33:40.015 --> 00:33:41.370 on the right is are  
NOTE Confidence: 0.9626859

00:33:41.370 --> 00:33:43.310 these indexes of higher inflammation.  
NOTE Confidence: 0.96419245

00:33:44.410 --> 00:33:45.850 We are finding indexes of  
NOTE Confidence: 0.96419245

00:33:45.850 --> 00:33:48.010 potential lower inflammation, you know,  
NOTE Confidence: 0.96419245

00:33:48.010 --> 00:33:49.290 of in the in the  
NOTE Confidence: 0.96419245

00:33:49.290 --> 00:33:51.050 the prenatal data. But there

NOTE Confidence: 0.96419245

00:33:51.050 --> 00:33:52.090 are some other data that

NOTE Confidence: 0.96419245

00:33:52.090 --> 00:33:53.690 are could potentially be consistent

NOTE Confidence: 0.96419245

00:33:53.690 --> 00:33:54.914 with this. So these are

NOTE Confidence: 0.96419245

00:33:54.914 --> 00:33:56.195 some preliminary data where we've

NOTE Confidence: 0.96419245

00:33:56.195 --> 00:33:58.534 looked at, relationships between cannabis

NOTE Confidence: 0.96419245

00:33:58.595 --> 00:34:00.534 use and inflammation in adults.

NOTE Confidence: 0.99553686

00:34:01.075 --> 00:34:02.115 So the data on the

NOTE Confidence: 0.99553686

00:34:02.115 --> 00:34:03.315 left are from the UK

NOTE Confidence: 0.99553686

00:34:03.315 --> 00:34:03.815 Biobank.

NOTE Confidence: 0.9107214

00:34:04.355 --> 00:34:05.554 So this is data in

NOTE Confidence: 0.9107214

00:34:05.554 --> 00:34:06.370 about a a hundred and

NOTE Confidence: 0.9107214

00:34:06.370 --> 00:34:08.130 fifty thousand or so older

NOTE Confidence: 0.9107214

00:34:08.130 --> 00:34:09.410 adults, both middle aged and

NOTE Confidence: 0.9107214

00:34:09.410 --> 00:34:10.530 older adults that would live

NOTE Confidence: 0.9107214

00:34:10.530 --> 00:34:11.270 in the UK.

NOTE Confidence: 0.97665334

00:34:11.890 --> 00:34:13.010 And you see this and  
NOTE Confidence: 0.97665334

00:34:13.010 --> 00:34:14.609 all these line patterns represent  
NOTE Confidence: 0.97665334

00:34:14.609 --> 00:34:16.150 significant differences, essentially.  
NOTE Confidence: 0.95762646

00:34:16.530 --> 00:34:17.810 But there's, kind of a  
NOTE Confidence: 0.95762646

00:34:17.969 --> 00:34:18.690 what I like to think  
NOTE Confidence: 0.95762646

00:34:18.690 --> 00:34:19.330 of as a kind of  
NOTE Confidence: 0.95762646

00:34:19.330 --> 00:34:20.469 a j shaped pattern  
NOTE Confidence: 0.9242954

00:34:21.195 --> 00:34:21.695 whereby,  
NOTE Confidence: 0.93558353

00:34:22.555 --> 00:34:23.515 never use, if you're looking  
NOTE Confidence: 0.93558353

00:34:23.515 --> 00:34:25.275 at CRP as a one  
NOTE Confidence: 0.93558353

00:34:25.275 --> 00:34:26.795 index of neuroinflammation as a  
NOTE Confidence: 0.93558353

00:34:26.795 --> 00:34:28.155 really stable, nice, you know,  
NOTE Confidence: 0.93558353

00:34:28.155 --> 00:34:29.215 easy easy measure.  
NOTE Confidence: 0.99964494

00:34:29.755 --> 00:34:31.135 People who are using cannabis  
NOTE Confidence: 0.99964494

00:34:31.195 --> 00:34:31.935 less frequently  
NOTE Confidence: 0.99645704

00:34:32.315 --> 00:34:34.619 actually have relatively lower levels

NOTE Confidence: 0.99645704

00:34:34.619 --> 00:34:36.219 of peripheral inflammation than those

NOTE Confidence: 0.99645704

00:34:36.219 --> 00:34:37.440 who are not using it,

NOTE Confidence: 0.9541087

00:34:37.819 --> 00:34:39.579 or who don't report using

NOTE Confidence: 0.9541087

00:34:39.579 --> 00:34:41.099 it regularly and never used

NOTE Confidence: 0.9541087

00:34:41.099 --> 00:34:42.380 it. But those who are

NOTE Confidence: 0.9541087

00:34:42.380 --> 00:34:43.900 using daily and very regularly

NOTE Confidence: 0.9541087

00:34:44.059 --> 00:34:45.440 and, again, there's not relatively

NOTE Confidence: 0.9541087

00:34:45.500 --> 00:34:46.700 small sample size in in

NOTE Confidence: 0.9541087

00:34:46.700 --> 00:34:48.055 this dataset. But there, we're

NOTE Confidence: 0.9541087

00:34:48.055 --> 00:34:49.335 actually seeing the inverse pattern

NOTE Confidence: 0.9541087

00:34:49.335 --> 00:34:50.875 where we're actually seeing increased

NOTE Confidence: 0.9541087

00:34:50.935 --> 00:34:51.915 levels of neuroinflammation.

NOTE Confidence: 0.9655591

00:34:52.855 --> 00:34:53.735 And we do see some

NOTE Confidence: 0.9655591

00:34:53.735 --> 00:34:55.015 other data that are consistent

NOTE Confidence: 0.9655591

00:34:55.015 --> 00:34:56.535 with this. So the data

NOTE Confidence: 0.9655591

00:34:56.535 --> 00:34:57.815 on the right is a  
NOTE Confidence: 0.9655591

00:34:57.815 --> 00:35:00.055 genomic structural equation model looking  
NOTE Confidence: 0.9655591

00:35:00.055 --> 00:35:01.520 at GWAS data. So these  
NOTE Confidence: 0.9655591

00:35:01.520 --> 00:35:03.280 are separate GWASs of cannabis  
NOTE Confidence: 0.9655591

00:35:03.280 --> 00:35:05.200 use disorders, separate GWAS of  
NOTE Confidence: 0.9655591

00:35:05.200 --> 00:35:06.719 c reactive protein, of BMI  
NOTE Confidence: 0.9655591

00:35:06.719 --> 00:35:08.020 cigarettes per day, and educational  
NOTE Confidence: 0.9655591

00:35:08.079 --> 00:35:08.579 attainment.  
NOTE Confidence: 0.9908751

00:35:09.040 --> 00:35:10.320 And what we essentially see  
NOTE Confidence: 0.9908751

00:35:10.320 --> 00:35:12.160 is that problematic cannabis use  
NOTE Confidence: 0.9908751

00:35:12.160 --> 00:35:13.540 or cannabis use disorder  
NOTE Confidence: 0.9897882

00:35:14.000 --> 00:35:14.739 has a  
NOTE Confidence: 0.9995713

00:35:15.185 --> 00:35:17.525 positive genetic correlation with CRP  
NOTE Confidence: 0.958624

00:35:17.905 --> 00:35:18.864 even when we had taken  
NOTE Confidence: 0.958624

00:35:18.864 --> 00:35:20.244 to account these other potentially  
NOTE Confidence: 0.958624

00:35:20.305 --> 00:35:22.545 confounding factors of BMI, cigarettes

NOTE Confidence: 0.958624  
00:35:22.545 --> 00:35:24.005 per day, and educational attainment  
NOTE Confidence: 0.958624  
00:35:24.065 --> 00:35:25.585 here. But the interesting thing  
NOTE Confidence: 0.958624  
00:35:25.585 --> 00:35:26.385 is if we sub out  
NOTE Confidence: 0.958624  
00:35:26.385 --> 00:35:28.225 cannabis use disorder and instead  
NOTE Confidence: 0.958624  
00:35:28.225 --> 00:35:29.570 put out ever use of  
NOTE Confidence: 0.958624  
00:35:29.570 --> 00:35:31.190 just ever having used cannabis,  
NOTE Confidence: 0.9764785  
00:35:31.489 --> 00:35:32.870 we actually find the directionality  
NOTE Confidence: 0.9764785  
00:35:33.010 --> 00:35:34.690 flip consistent with this UK  
NOTE Confidence: 0.9764785  
00:35:34.690 --> 00:35:35.670 Biobank data  
NOTE Confidence: 0.9134062  
00:35:36.050 --> 00:35:38.050 where, ever cannabis use is  
NOTE Confidence: 0.9134062  
00:35:38.050 --> 00:35:39.830 associated genetically correlated  
NOTE Confidence: 0.9261805  
00:35:40.370 --> 00:35:41.190 with lower,  
NOTE Confidence: 0.9991359  
00:35:41.570 --> 00:35:42.550 CRP levels.  
NOTE Confidence: 0.9990317  
00:35:42.850 --> 00:35:43.925 So I think this is  
NOTE Confidence: 0.9558113  
00:35:44.465 --> 00:35:45.425 interesting, because it it does  
NOTE Confidence: 0.9558113

00:35:45.425 --> 00:35:46.705 align with this idea that  
NOTE Confidence: 0.9558113

00:35:46.705 --> 00:35:47.605 perhaps the  
NOTE Confidence: 0.9729902

00:35:47.985 --> 00:35:49.825 links between inflammation and cannabis  
NOTE Confidence: 0.9729902

00:35:49.825 --> 00:35:51.285 use are much more complicated  
NOTE Confidence: 0.9729902

00:35:51.344 --> 00:35:52.305 than we may be led  
NOTE Confidence: 0.9729902

00:35:52.305 --> 00:35:53.265 to believe by some of  
NOTE Confidence: 0.9729902

00:35:53.265 --> 00:35:54.785 the the the initial studies.  
NOTE Confidence: 0.9729902

00:35:54.785 --> 00:35:55.680 And And it really suggests  
NOTE Confidence: 0.9729902

00:35:55.680 --> 00:35:57.619 that problematic heavy cannabis use  
NOTE Confidence: 0.99437684

00:35:57.920 --> 00:35:58.739 may be associated,  
NOTE Confidence: 0.9503038

00:36:00.080 --> 00:36:00.960 you know, with with these  
NOTE Confidence: 0.9503038

00:36:00.960 --> 00:36:02.640 elevations and inflammation. And with  
NOTE Confidence: 0.9503038

00:36:02.640 --> 00:36:03.520 these data, we have tried  
NOTE Confidence: 0.9503038

00:36:03.520 --> 00:36:04.239 to push it. Like, we  
NOTE Confidence: 0.9503038

00:36:04.239 --> 00:36:05.219 tried to, you know  
NOTE Confidence: 0.920226

00:36:05.760 --> 00:36:06.640 perhaps this is a you

NOTE Confidence: 0.920226

00:36:06.640 --> 00:36:08.000 know, the regular users are

NOTE Confidence: 0.920226

00:36:08.000 --> 00:36:09.494 using it for pain, which

NOTE Confidence: 0.920226

00:36:09.494 --> 00:36:11.035 obviously is associated with inflammation

NOTE Confidence: 0.920226

00:36:11.174 --> 00:36:12.694 or other medical problems. And

NOTE Confidence: 0.920226

00:36:12.694 --> 00:36:13.575 even when we covary for

NOTE Confidence: 0.920226

00:36:13.575 --> 00:36:14.614 that, we still see this

NOTE Confidence: 0.920226

00:36:14.694 --> 00:36:15.994 the these these, associations.

NOTE Confidence: 0.93100363

00:36:17.494 --> 00:36:18.055 So I think it's quite

NOTE Confidence: 0.93100363

00:36:18.055 --> 00:36:18.934 interesting, but we really need

NOTE Confidence: 0.93100363

00:36:18.934 --> 00:36:20.214 to push these data further.

NOTE Confidence: 0.93100363

00:36:20.214 --> 00:36:21.174 I very much see them

NOTE Confidence: 0.93100363

00:36:21.174 --> 00:36:22.214 as preliminary at at this

NOTE Confidence: 0.93100363

00:36:22.214 --> 00:36:22.954 point still.

NOTE Confidence: 0.9591529

00:36:24.980 --> 00:36:26.180 So lastly, I wanna talk

NOTE Confidence: 0.9591529

00:36:26.180 --> 00:36:27.140 about one of the studies

NOTE Confidence: 0.9591529

00:36:27.140 --> 00:36:28.660 that I've, been doing with  
NOTE Confidence: 0.9591529

00:36:28.660 --> 00:36:30.339 Cynthia Rogers and Arpana Agrawal  
NOTE Confidence: 0.9591529

00:36:30.339 --> 00:36:31.619 here to try to address  
NOTE Confidence: 0.9591529

00:36:31.619 --> 00:36:32.520 some of these limitations  
NOTE Confidence: 0.9513409

00:36:32.980 --> 00:36:33.540 of the,  
NOTE Confidence: 0.97042704

00:36:34.500 --> 00:36:35.960 of the ABCD dataset.  
NOTE Confidence: 0.96574247

00:36:36.315 --> 00:36:37.755 So here with our in  
NOTE Confidence: 0.96574247

00:36:37.755 --> 00:36:39.515 collaboration with our OBGYN clinic  
NOTE Confidence: 0.96574247

00:36:39.515 --> 00:36:41.114 here, we're recruiting women who  
NOTE Confidence: 0.96574247

00:36:41.114 --> 00:36:42.315 are using cannabis and those  
NOTE Confidence: 0.96574247

00:36:42.315 --> 00:36:43.135 who are not.  
NOTE Confidence: 0.9596644

00:36:43.515 --> 00:36:44.635 And one critical thing about  
NOTE Confidence: 0.9596644

00:36:44.635 --> 00:36:45.435 this study that I think  
NOTE Confidence: 0.9596644

00:36:45.435 --> 00:36:46.555 is nice, we're trying to  
NOTE Confidence: 0.9596644

00:36:46.555 --> 00:36:47.694 account for these confounds,  
NOTE Confidence: 0.99943846

00:36:47.994 --> 00:36:49.150 is even though

NOTE Confidence: 0.969267

00:36:49.530 --> 00:36:50.730 the individuals who are not

NOTE Confidence: 0.969267

00:36:50.730 --> 00:36:52.270 using cannabis during their pregnancy,

NOTE Confidence: 0.969267

00:36:52.410 --> 00:36:53.930 we require them to have

NOTE Confidence: 0.969267

00:36:53.930 --> 00:36:55.930 endorsed lifetime use of cannabis.

NOTE Confidence: 0.969267

00:36:55.930 --> 00:36:56.969 So, you know, hopefully that

NOTE Confidence: 0.969267

00:36:56.969 --> 00:36:57.930 will account for some of

NOTE Confidence: 0.969267

00:36:57.930 --> 00:36:59.610 the confounds associated with ever

NOTE Confidence: 0.969267

00:36:59.610 --> 00:37:00.110 exposure.

NOTE Confidence: 0.99062765

00:37:00.650 --> 00:37:01.850 And we are recruiting them

NOTE Confidence: 0.99062765

00:37:01.850 --> 00:37:03.310 all from the same clinic.

NOTE Confidence: 0.95856583

00:37:04.305 --> 00:37:05.105 And one of the other

NOTE Confidence: 0.95856583

00:37:05.105 --> 00:37:06.145 interesting thing is there are

NOTE Confidence: 0.95856583

00:37:06.145 --> 00:37:07.844 some racial differences epidemiologically

NOTE Confidence: 0.96999013

00:37:08.224 --> 00:37:10.305 associated with cannabis use, where

NOTE Confidence: 0.96999013

00:37:10.305 --> 00:37:11.984 in black samples, you'll tend

NOTE Confidence: 0.96999013

00:37:11.984 --> 00:37:13.665 to see cannabis use used  
NOTE Confidence: 0.96999013

00:37:13.665 --> 00:37:15.344 in isolation of other other  
NOTE Confidence: 0.96999013

00:37:15.344 --> 00:37:17.105 substances without alcohol and the  
NOTE Confidence: 0.96999013

00:37:17.105 --> 00:37:18.490 like. So partly because of  
NOTE Confidence: 0.96999013

00:37:18.490 --> 00:37:19.610 our population here in Saint  
NOTE Confidence: 0.96999013

00:37:19.610 --> 00:37:21.290 Louis, it's a predominantly black  
NOTE Confidence: 0.96999013

00:37:21.290 --> 00:37:22.490 population, but we're able to  
NOTE Confidence: 0.96999013

00:37:22.490 --> 00:37:24.250 control and recruit a sample  
NOTE Confidence: 0.96999013

00:37:24.250 --> 00:37:25.770 that's not using other substances,  
NOTE Confidence: 0.96999013

00:37:26.010 --> 00:37:26.810 which is one of our  
NOTE Confidence: 0.96999013

00:37:26.810 --> 00:37:27.950 eligibility requirements.  
NOTE Confidence: 0.9884829

00:37:28.410 --> 00:37:29.785 With that said, we are  
NOTE Confidence: 0.9884829

00:37:29.785 --> 00:37:30.665 getting a fair amount of  
NOTE Confidence: 0.9884829

00:37:30.665 --> 00:37:32.425 cotinine positivity. And when we  
NOTE Confidence: 0.9884829

00:37:32.425 --> 00:37:33.465 look at the self report  
NOTE Confidence: 0.9884829

00:37:33.465 --> 00:37:33.965 data,

NOTE Confidence: 0.94681835  
00:37:34.344 --> 00:37:35.705 they are reporting using blunts,  
NOTE Confidence: 0.94681835  
00:37:35.705 --> 00:37:36.985 and also there's a common  
NOTE Confidence: 0.94681835  
00:37:36.985 --> 00:37:38.525 thing too here of wrapping,  
NOTE Confidence: 0.8576659  
00:37:39.225 --> 00:37:40.825 Tibet the joints as well  
NOTE Confidence: 0.8576659  
00:37:40.825 --> 00:37:42.265 in cannabis sleeves. So there's  
NOTE Confidence: 0.8576659  
00:37:42.265 --> 00:37:43.385 kind of specific thing in  
NOTE Confidence: 0.8576659  
00:37:43.385 --> 00:37:44.700 in addition to blunt usage.  
NOTE Confidence: 0.97549176  
00:37:45.260 --> 00:37:46.300 So we think it's occurring  
NOTE Confidence: 0.97549176  
00:37:46.300 --> 00:37:47.420 from that. They'll report they're  
NOTE Confidence: 0.97549176  
00:37:47.420 --> 00:37:49.099 not using cotinine or tobacco  
NOTE Confidence: 0.97549176  
00:37:49.099 --> 00:37:49.900 or anything, but they then  
NOTE Confidence: 0.97549176  
00:37:49.900 --> 00:37:50.940 they'll report that they're using  
NOTE Confidence: 0.97549176  
00:37:50.940 --> 00:37:51.920 it in this way.  
NOTE Confidence: 0.9357665  
00:37:52.780 --> 00:37:53.579 A couple things I really  
NOTE Confidence: 0.9357665  
00:37:53.579 --> 00:37:54.380 want do wanna point out  
NOTE Confidence: 0.9357665

00:37:54.380 --> 00:37:55.339 with the sample, though, is  
NOTE Confidence: 0.9357665

00:37:55.339 --> 00:37:56.560 it's matched in  
NOTE Confidence: 0.9193928

00:37:57.045 --> 00:37:57.545 non,  
NOTE Confidence: 0.9659393

00:37:57.844 --> 00:37:58.744 you know, you know, cannabis  
NOTE Confidence: 0.9659393

00:37:58.805 --> 00:38:00.085 and cannabis exposure groups, but  
NOTE Confidence: 0.9659393

00:38:00.085 --> 00:38:01.285 it's a very under resourced  
NOTE Confidence: 0.9659393

00:38:01.285 --> 00:38:01.785 population.  
NOTE Confidence: 0.9841261

00:38:02.724 --> 00:38:04.325 You know, about fifteen percent  
NOTE Confidence: 0.9841261

00:38:04.325 --> 00:38:05.704 did not complete high school.  
NOTE Confidence: 0.9708314

00:38:06.244 --> 00:38:07.684 Almost fifty percent are living  
NOTE Confidence: 0.9708314

00:38:07.684 --> 00:38:09.204 beyond below the federal poverty  
NOTE Confidence: 0.9708314

00:38:09.204 --> 00:38:10.565 line, which is quite quite  
NOTE Confidence: 0.9708314

00:38:10.565 --> 00:38:11.700 low. And some of those  
NOTE Confidence: 0.9708314

00:38:11.700 --> 00:38:13.219 factors are associated with testing  
NOTE Confidence: 0.9708314

00:38:13.219 --> 00:38:14.340 positive for coat name, for  
NOTE Confidence: 0.9708314

00:38:14.340 --> 00:38:16.260 example, and but not reporting,

NOTE Confidence: 0.9708314  
00:38:16.420 --> 00:38:17.640 tobacco use, which,  
NOTE Confidence: 0.96668035  
00:38:18.100 --> 00:38:18.900 we think could be playing  
NOTE Confidence: 0.96668035  
00:38:18.900 --> 00:38:19.560 a role.  
NOTE Confidence: 0.99267375  
00:38:20.020 --> 00:38:21.320 But there are some interesting,  
NOTE Confidence: 0.9685682  
00:38:21.859 --> 00:38:23.535 patterns we are seeing. First  
NOTE Confidence: 0.9685682  
00:38:23.535 --> 00:38:24.734 off, we did do urine  
NOTE Confidence: 0.9685682  
00:38:24.734 --> 00:38:26.015 drug screens in this. So  
NOTE Confidence: 0.9685682  
00:38:26.015 --> 00:38:26.734 this is not the gold  
NOTE Confidence: 0.9685682  
00:38:26.734 --> 00:38:27.535 standard. We wish we could  
NOTE Confidence: 0.9685682  
00:38:27.535 --> 00:38:28.655 have done placental cord tissue  
NOTE Confidence: 0.9685682  
00:38:28.655 --> 00:38:29.934 and the like. We're looking  
NOTE Confidence: 0.9685682  
00:38:29.934 --> 00:38:30.494 to do that in the  
NOTE Confidence: 0.9685682  
00:38:30.494 --> 00:38:31.535 future in this sample because  
NOTE Confidence: 0.9685682  
00:38:31.535 --> 00:38:32.915 we did collect those data.  
NOTE Confidence: 0.95490235  
00:38:33.454 --> 00:38:34.175 But these are just the  
NOTE Confidence: 0.95490235

00:38:34.175 --> 00:38:35.375 urine dipsticks, right, that don't  
NOTE Confidence: 0.95490235

00:38:35.375 --> 00:38:36.734 have the that great temporal,  
NOTE Confidence: 0.95490235

00:38:36.974 --> 00:38:37.474 resolution.  
NOTE Confidence: 0.9799749

00:38:38.190 --> 00:38:39.150 But we do find them  
NOTE Confidence: 0.9799749

00:38:39.150 --> 00:38:40.430 to be concordant in most  
NOTE Confidence: 0.9799749

00:38:40.430 --> 00:38:40.930 cases,  
NOTE Confidence: 0.9933293

00:38:41.630 --> 00:38:42.510 for so those who are  
NOTE Confidence: 0.9933293

00:38:42.510 --> 00:38:43.950 reporting use are also testing  
NOTE Confidence: 0.9933293

00:38:43.950 --> 00:38:44.989 positive. Those who are not  
NOTE Confidence: 0.9933293

00:38:44.989 --> 00:38:46.510 reporting use are not testing  
NOTE Confidence: 0.9933293

00:38:46.510 --> 00:38:47.010 positive.  
NOTE Confidence: 0.97601575

00:38:47.469 --> 00:38:48.770 We do have a substantial  
NOTE Confidence: 0.97601575

00:38:48.910 --> 00:38:50.589 portion not a substantial portion,  
NOTE Confidence: 0.97601575

00:38:50.589 --> 00:38:52.349 but around it's approaching twenty  
NOTE Confidence: 0.97601575

00:38:52.349 --> 00:38:53.410 percent or so  
NOTE Confidence: 0.97945166

00:38:53.925 --> 00:38:55.525 of individuals who don't report

NOTE Confidence: 0.97945166

00:38:55.525 --> 00:38:57.145 use but are testing positive.

NOTE Confidence: 0.964737

00:38:57.685 --> 00:38:58.645 And in some of those

NOTE Confidence: 0.964737

00:38:58.645 --> 00:38:59.685 cases, we think there are

NOTE Confidence: 0.964737

00:38:59.685 --> 00:39:01.125 some possible explanations. In the

NOTE Confidence: 0.964737

00:39:01.125 --> 00:39:02.565 literature, this is all typically

NOTE Confidence: 0.964737

00:39:02.565 --> 00:39:03.545 reported to be deception,

NOTE Confidence: 0.9522109

00:39:04.085 --> 00:39:05.205 from individuals or that they're

NOTE Confidence: 0.9522109

00:39:05.205 --> 00:39:06.165 lying about their use during

NOTE Confidence: 0.9522109

00:39:06.165 --> 00:39:07.125 pregnancy, and I think there's

NOTE Confidence: 0.9522109

00:39:07.125 --> 00:39:08.165 evidence that suggests this could

NOTE Confidence: 0.9522109

00:39:08.165 --> 00:39:09.065 be other things.

NOTE Confidence: 0.9858904

00:39:09.869 --> 00:39:11.069 For example, there's some data

NOTE Confidence: 0.9858904

00:39:11.069 --> 00:39:12.609 that to suggest that secondhand

NOTE Confidence: 0.9858904

00:39:12.670 --> 00:39:14.589 exposure in confined rooms regularly

NOTE Confidence: 0.9858904

00:39:14.589 --> 00:39:15.969 can lead to testing positive.

NOTE Confidence: 0.99920493

00:39:16.349 --> 00:39:17.390 And a good portion of  
NOTE Confidence: 0.99920493

00:39:17.390 --> 00:39:18.910 these women who were testing  
NOTE Confidence: 0.99920493

00:39:18.910 --> 00:39:20.049 positive for this  
NOTE Confidence: 0.89499044

00:39:20.430 --> 00:39:22.130 but reporting no use,  
NOTE Confidence: 0.9993243

00:39:23.150 --> 00:39:23.650 reported  
NOTE Confidence: 0.97753143

00:39:24.305 --> 00:39:25.185 living in a home where  
NOTE Confidence: 0.97753143

00:39:25.185 --> 00:39:26.485 there was a regular smoker  
NOTE Confidence: 0.97753143

00:39:26.545 --> 00:39:27.765 or, living  
NOTE Confidence: 0.9224434

00:39:28.065 --> 00:39:28.945 or you're traveling in a  
NOTE Confidence: 0.9224434

00:39:28.945 --> 00:39:29.605 car regularly,  
NOTE Confidence: 0.94966656

00:39:30.065 --> 00:39:31.445 with somebody who is using.  
NOTE Confidence: 0.94966656

00:39:31.505 --> 00:39:32.225 The other thing I wanna  
NOTE Confidence: 0.94966656

00:39:32.225 --> 00:39:33.345 note about our sample is  
NOTE Confidence: 0.94966656

00:39:33.345 --> 00:39:34.305 we did assess all kinds  
NOTE Confidence: 0.94966656

00:39:34.305 --> 00:39:35.345 of different modes of use  
NOTE Confidence: 0.94966656

00:39:35.345 --> 00:39:35.925 in this.

NOTE Confidence: 0.943125  
00:39:36.465 --> 00:39:37.650 In this sample, it's almost  
NOTE Confidence: 0.943125  
00:39:37.730 --> 00:39:38.690 it's I wanna say it's,  
NOTE Confidence: 0.943125  
00:39:38.690 --> 00:39:40.130 like, ninety five percent smoking  
NOTE Confidence: 0.943125  
00:39:40.130 --> 00:39:41.030 or using Bongs.  
NOTE Confidence: 0.9647279  
00:39:41.410 --> 00:39:43.010 So it's very traditional measures.  
NOTE Confidence: 0.9647279  
00:39:43.010 --> 00:39:44.049 This is not, like, a,  
NOTE Confidence: 0.9647279  
00:39:44.049 --> 00:39:45.410 you know, a higher SES  
NOTE Confidence: 0.9647279  
00:39:45.410 --> 00:39:46.770 sample that's using gummies and  
NOTE Confidence: 0.9647279  
00:39:46.770 --> 00:39:47.569 all of those sorts of  
NOTE Confidence: 0.9647279  
00:39:47.569 --> 00:39:48.770 things. It's really a a  
NOTE Confidence: 0.9647279  
00:39:48.770 --> 00:39:49.750 smoking sample.  
NOTE Confidence: 0.93656963  
00:39:51.305 --> 00:39:52.424 So, yeah, we've we've tracked  
NOTE Confidence: 0.93656963  
00:39:52.424 --> 00:39:53.704 birth outcomes in them. We  
NOTE Confidence: 0.93656963  
00:39:53.704 --> 00:39:55.305 are seeing the reduced reductions  
NOTE Confidence: 0.93656963  
00:39:55.305 --> 00:39:56.125 in birth weight,  
NOTE Confidence: 0.967098

00:39:56.664 --> 00:39:58.025 but I remain unconvinced that  
NOTE Confidence: 0.967098

00:39:58.025 --> 00:39:59.224 this is independent of coat  
NOTE Confidence: 0.967098

00:39:59.224 --> 00:40:00.844 name. One of the difficulties  
NOTE Confidence: 0.967098

00:40:00.904 --> 00:40:02.184 is our heavier cannabis users  
NOTE Confidence: 0.967098

00:40:02.184 --> 00:40:03.224 are also the ones testing  
NOTE Confidence: 0.967098

00:40:03.224 --> 00:40:04.859 positive for coat name through  
NOTE Confidence: 0.967098

00:40:04.859 --> 00:40:06.079 blunt usage, presumably,  
NOTE Confidence: 0.99428636

00:40:06.619 --> 00:40:07.420 but there could be other  
NOTE Confidence: 0.99428636

00:40:07.420 --> 00:40:08.859 factors as well. And this  
NOTE Confidence: 0.99428636

00:40:08.859 --> 00:40:09.579 this does seem to be  
NOTE Confidence: 0.99428636

00:40:09.579 --> 00:40:10.779 there, but it's certainly less  
NOTE Confidence: 0.99428636

00:40:10.779 --> 00:40:11.900 strong. So at least some  
NOTE Confidence: 0.99428636

00:40:11.900 --> 00:40:12.779 of it seems to be  
NOTE Confidence: 0.99428636

00:40:12.779 --> 00:40:14.640 potentially attributable to comorbid,  
NOTE Confidence: 0.993762

00:40:15.099 --> 00:40:16.160 cotinine positivity.  
NOTE Confidence: 0.98395675

00:40:17.344 --> 00:40:18.224 And then the other thing

NOTE Confidence: 0.98395675  
00:40:18.224 --> 00:40:19.505 that you're looking at down  
NOTE Confidence: 0.98395675  
00:40:19.505 --> 00:40:20.545 here on the bottom graph,  
NOTE Confidence: 0.98395675  
00:40:20.545 --> 00:40:21.204 the IBSI,  
NOTE Confidence: 0.99868774  
00:40:21.585 --> 00:40:23.045 this is an infant temperament  
NOTE Confidence: 0.99868774  
00:40:23.105 --> 00:40:24.545 test that is looking at  
NOTE Confidence: 0.99868774  
00:40:24.545 --> 00:40:25.045 externalizing  
NOTE Confidence: 0.8875576  
00:40:25.344 --> 00:40:25.844 behavior.  
NOTE Confidence: 0.9371218  
00:40:26.464 --> 00:40:28.224 And at six months of  
NOTE Confidence: 0.9371218  
00:40:28.224 --> 00:40:29.424 age actually, excuse me. This  
NOTE Confidence: 0.9371218  
00:40:29.424 --> 00:40:30.450 is twelve months of age.  
NOTE Confidence: 0.9371218  
00:40:30.690 --> 00:40:31.650 And this is a subsample,  
NOTE Confidence: 0.9371218  
00:40:31.650 --> 00:40:32.290 so we're still getting there.  
NOTE Confidence: 0.9371218  
00:40:32.290 --> 00:40:33.329 So this is very plain,  
NOTE Confidence: 0.9371218  
00:40:33.329 --> 00:40:34.290 hey. It's a subsample of  
NOTE Confidence: 0.9371218  
00:40:34.290 --> 00:40:34.950 the data.  
NOTE Confidence: 0.9051662

00:40:35.329 --> 00:40:37.010 But we are seeing increased  
NOTE Confidence: 0.9051662

00:40:37.010 --> 00:40:39.089 externalizing like behavior, then as  
NOTE Confidence: 0.9051662

00:40:39.089 --> 00:40:41.270 well, associated with prenatal, cannabis  
NOTE Confidence: 0.9051662

00:40:41.329 --> 00:40:41.829 exposure.  
NOTE Confidence: 0.9385787

00:40:43.085 --> 00:40:44.364 And then lastly, one of  
NOTE Confidence: 0.9385787

00:40:44.364 --> 00:40:45.164 the other things we've been  
NOTE Confidence: 0.9385787

00:40:45.164 --> 00:40:46.364 doing is trying to attack,  
NOTE Confidence: 0.9385787

00:40:46.364 --> 00:40:47.964 you know, why are people  
NOTE Confidence: 0.9385787

00:40:47.964 --> 00:40:49.325 using cannabis during pregnancy? And  
NOTE Confidence: 0.9385787

00:40:49.325 --> 00:40:50.204 this this is the full  
NOTE Confidence: 0.9385787

00:40:50.204 --> 00:40:51.085 data set. Right? Because we've  
NOTE Confidence: 0.9385787

00:40:51.085 --> 00:40:52.545 had everybody give birth now  
NOTE Confidence: 0.9385787

00:40:52.684 --> 00:40:53.184 essentially.  
NOTE Confidence: 0.9754456

00:40:53.805 --> 00:40:55.325 But we asked, women to  
NOTE Confidence: 0.9754456

00:40:55.325 --> 00:40:56.364 report on why they were  
NOTE Confidence: 0.9754456

00:40:56.364 --> 00:40:57.339 using cannabis or what their

NOTE Confidence: 0.9754456  
00:40:57.339 --> 00:40:58.960 motives were for using cannabis.  
NOTE Confidence: 0.9754456  
00:40:59.180 --> 00:41:00.780 And people could endorse multiple  
NOTE Confidence: 0.9754456  
00:41:00.780 --> 00:41:01.739 of these, so they're not  
NOTE Confidence: 0.9754456  
00:41:01.739 --> 00:41:03.260 mutually exclusive. Right? But we  
NOTE Confidence: 0.9754456  
00:41:03.260 --> 00:41:04.859 sound you know, that most  
NOTE Confidence: 0.9754456  
00:41:04.859 --> 00:41:06.460 women were reporting using it  
NOTE Confidence: 0.9754456  
00:41:06.460 --> 00:41:07.900 for nausea or vomiting in  
NOTE Confidence: 0.9754456  
00:41:07.900 --> 00:41:08.800 the first trimester.  
NOTE Confidence: 0.9956702  
00:41:09.260 --> 00:41:10.219 But the other thing that  
NOTE Confidence: 0.9956702  
00:41:10.219 --> 00:41:11.280 came out was,  
NOTE Confidence: 0.9698981  
00:41:11.755 --> 00:41:13.435 one, regulating things like appetite  
NOTE Confidence: 0.9698981  
00:41:13.435 --> 00:41:14.635 or sleep, but also a  
NOTE Confidence: 0.9698981  
00:41:14.635 --> 00:41:15.915 lot of psychopathology. So you  
NOTE Confidence: 0.9698981  
00:41:15.915 --> 00:41:17.195 see people reporting to use  
NOTE Confidence: 0.9698981  
00:41:17.195 --> 00:41:18.875 it for anxiety, stress, depression,  
NOTE Confidence: 0.9698981

00:41:18.875 --> 00:41:19.375 PTSD,  
NOTE Confidence: 0.9841878

00:41:20.155 --> 00:41:21.675 energy, pain management, and the  
NOTE Confidence: 0.9841878

00:41:21.675 --> 00:41:22.175 like.  
NOTE Confidence: 0.9924377

00:41:22.955 --> 00:41:24.815 And these differences in reports  
NOTE Confidence: 0.98499274

00:41:25.355 --> 00:41:26.795 are also associated with continued  
NOTE Confidence: 0.98499274

00:41:26.795 --> 00:41:27.840 use. So these are the  
NOTE Confidence: 0.98499274

00:41:27.840 --> 00:41:29.040 motives that they reported in  
NOTE Confidence: 0.98499274

00:41:29.040 --> 00:41:29.940 the first trimester.  
NOTE Confidence: 0.98946214

00:41:30.560 --> 00:41:31.440 And if we look at  
NOTE Confidence: 0.98946214

00:41:31.440 --> 00:41:32.640 that and say, well, if  
NOTE Confidence: 0.98946214

00:41:32.640 --> 00:41:33.440 these are your motives of  
NOTE Confidence: 0.98946214

00:41:33.440 --> 00:41:34.560 use, how likely is it  
NOTE Confidence: 0.98946214

00:41:34.560 --> 00:41:36.100 that you'll continue to use  
NOTE Confidence: 0.98946214

00:41:36.160 --> 00:41:37.460 into into the pregnancy?  
NOTE Confidence: 0.9952034

00:41:38.239 --> 00:41:38.640 And,  
NOTE Confidence: 0.95101845

00:41:39.120 --> 00:41:40.660 we do find that essentially

NOTE Confidence: 0.95101845  
00:41:40.800 --> 00:41:42.315 all of these more psychopathology  
NOTE Confidence: 0.95101845  
00:41:42.535 --> 00:41:43.975 related factors that people are  
NOTE Confidence: 0.95101845  
00:41:43.975 --> 00:41:44.475 reporting  
NOTE Confidence: 0.9071729  
00:41:44.775 --> 00:41:46.295 use, of their reason for  
NOTE Confidence: 0.9071729  
00:41:46.295 --> 00:41:46.795 using,  
NOTE Confidence: 0.98908395  
00:41:47.175 --> 00:41:48.695 that is predictive of a  
NOTE Confidence: 0.98908395  
00:41:48.695 --> 00:41:50.295 two to threefold odds ratio  
NOTE Confidence: 0.98908395  
00:41:50.295 --> 00:41:51.655 of continued use into the  
NOTE Confidence: 0.98908395  
00:41:51.655 --> 00:41:52.875 second and third trimesters.  
NOTE Confidence: 0.91609794  
00:41:53.335 --> 00:41:54.295 But the other interesting thing  
NOTE Confidence: 0.91609794  
00:41:54.295 --> 00:41:55.175 was that those who are  
NOTE Confidence: 0.91609794  
00:41:55.175 --> 00:41:56.660 reporting use for nausea over  
NOTE Confidence: 0.91609794  
00:41:56.660 --> 00:41:57.880 the the far right,  
NOTE Confidence: 0.97528946  
00:41:58.180 --> 00:41:59.460 that was not associated with  
NOTE Confidence: 0.97528946  
00:41:59.460 --> 00:42:01.160 a significant increase or  
NOTE Confidence: 0.9683431

00:42:01.460 --> 00:42:03.080 a significant likelihood of continuing  
NOTE Confidence: 0.9683431

00:42:03.140 --> 00:42:04.120 use through the pregnancy.  
NOTE Confidence: 0.9773545

00:42:04.500 --> 00:42:05.300 And some of that may  
NOTE Confidence: 0.9773545

00:42:05.300 --> 00:42:06.660 be, you know, reflective of  
NOTE Confidence: 0.9773545

00:42:06.660 --> 00:42:07.700 when nausea is most, you  
NOTE Confidence: 0.9773545

00:42:07.700 --> 00:42:08.980 know, prominent in in pregnancy  
NOTE Confidence: 0.9773545

00:42:08.980 --> 00:42:10.360 during the the first trimester,  
NOTE Confidence: 0.9327416

00:42:11.005 --> 00:42:12.125 for example, whereas other things  
NOTE Confidence: 0.9327416

00:42:12.125 --> 00:42:12.765 like pain and some of  
NOTE Confidence: 0.9327416

00:42:12.765 --> 00:42:13.344 these psychopathology,  
NOTE Confidence: 0.9963843

00:42:13.965 --> 00:42:15.344 problems are are more consistent.  
NOTE Confidence: 0.95746124

00:42:16.525 --> 00:42:17.805 And then lastly, on the  
NOTE Confidence: 0.95746124

00:42:17.805 --> 00:42:18.945 the bottom graphs  
NOTE Confidence: 0.92879313

00:42:19.405 --> 00:42:20.285 are just showing,  
NOTE Confidence: 0.9771509

00:42:20.685 --> 00:42:21.984 depression and stress,  
NOTE Confidence: 0.9496825

00:42:23.244 --> 00:42:25.244 trajectories through pregnancy across the

NOTE Confidence: 0.9496825  
00:42:25.244 --> 00:42:26.305 the three different trimesters.  
NOTE Confidence: 0.9762479  
00:42:27.460 --> 00:42:29.219 The individuals with the the  
NOTE Confidence: 0.9762479  
00:42:29.219 --> 00:42:31.140 gold are the gold colored  
NOTE Confidence: 0.9762479  
00:42:31.140 --> 00:42:33.000 dots are those who used  
NOTE Confidence: 0.9762479  
00:42:33.140 --> 00:42:33.719 a prenatal  
NOTE Confidence: 0.8891102  
00:42:34.100 --> 00:42:35.640 cannabis during their pregnancy  
NOTE Confidence: 0.992839  
00:42:36.100 --> 00:42:37.620 and reported a motive of  
NOTE Confidence: 0.992839  
00:42:37.620 --> 00:42:38.920 using it for mental health.  
NOTE Confidence: 0.92764246  
00:42:39.785 --> 00:42:41.305 The individuals in blue are  
NOTE Confidence: 0.92764246  
00:42:41.305 --> 00:42:43.325 reflecting of people who used  
NOTE Confidence: 0.92764246  
00:42:43.465 --> 00:42:43.965 cannabis,  
NOTE Confidence: 0.9257375  
00:42:44.345 --> 00:42:45.705 the light blue, who used  
NOTE Confidence: 0.9257375  
00:42:45.705 --> 00:42:47.005 cannabis during their pregnancy,  
NOTE Confidence: 0.97477895  
00:42:47.705 --> 00:42:49.145 but reported other motives for  
NOTE Confidence: 0.97477895  
00:42:49.145 --> 00:42:50.985 using it. So not things  
NOTE Confidence: 0.97477895

00:42:50.985 --> 00:42:52.585 like struggling with depression, for

NOTE Confidence: 0.97477895

00:42:52.585 --> 00:42:53.085 example.

NOTE Confidence: 0.99845237

00:42:53.520 --> 00:42:54.719 And then the other the

NOTE Confidence: 0.99845237

00:42:54.719 --> 00:42:55.760 darker blue line are those

NOTE Confidence: 0.99845237

00:42:55.760 --> 00:42:56.900 who didn't use cannabis.

NOTE Confidence: 0.9789302

00:42:57.680 --> 00:42:58.719 So one is the people

NOTE Confidence: 0.9789302

00:42:58.719 --> 00:42:59.920 that are report using cannabis

NOTE Confidence: 0.9789302

00:42:59.920 --> 00:43:00.800 and report using it for

NOTE Confidence: 0.9789302

00:43:00.800 --> 00:43:01.840 mental health are reporting more

NOTE Confidence: 0.9789302

00:43:01.840 --> 00:43:02.900 stress, more depression.

NOTE Confidence: 0.95367616

00:43:03.760 --> 00:43:04.800 But we're not seeing changes

NOTE Confidence: 0.95367616

00:43:04.800 --> 00:43:06.505 across pregnancy. There's actually, if

NOTE Confidence: 0.95367616

00:43:06.505 --> 00:43:07.305 you look at the slopes,

NOTE Confidence: 0.95367616

00:43:07.305 --> 00:43:07.945 so if you do the

NOTE Confidence: 0.95367616

00:43:07.945 --> 00:43:09.705 longitudinal data analysis kind of

NOTE Confidence: 0.95367616

00:43:09.705 --> 00:43:10.984 across trimester, we find no

NOTE Confidence: 0.95367616

00:43:10.984 --> 00:43:12.025 difference in change. It's just

NOTE Confidence: 0.95367616

00:43:12.025 --> 00:43:13.625 the intercept. They're they're I

NOTE Confidence: 0.95367616

00:43:13.625 --> 00:43:15.005 don't think it's particularly surprising.

NOTE Confidence: 0.9550124

00:43:15.545 --> 00:43:16.905 But, you know, and we

NOTE Confidence: 0.9550124

00:43:16.905 --> 00:43:18.265 did do some follow-up analysis

NOTE Confidence: 0.9550124

00:43:18.265 --> 00:43:19.465 that aren't reported here where

NOTE Confidence: 0.9550124

00:43:19.465 --> 00:43:19.864 we took,

NOTE Confidence: 0.9963682

00:43:21.180 --> 00:43:22.540 other people who were not

NOTE Confidence: 0.9963682

00:43:22.540 --> 00:43:23.980 using cannabis, for example, that

NOTE Confidence: 0.9963682

00:43:23.980 --> 00:43:24.640 had high

NOTE Confidence: 0.9599707

00:43:25.020 --> 00:43:26.460 depression scores at baseline, and

NOTE Confidence: 0.9599707

00:43:26.460 --> 00:43:27.819 we find their trajectory to

NOTE Confidence: 0.9599707

00:43:27.819 --> 00:43:30.060 largely mirror, these individuals. So,

NOTE Confidence: 0.9599707

00:43:30.060 --> 00:43:30.940 you know, whether it's helping

NOTE Confidence: 0.9599707

00:43:30.940 --> 00:43:31.660 or maybe we can't tell

NOTE Confidence: 0.9599707

00:43:31.660 --> 00:43:32.619 from these data, but it's  
NOTE Confidence: 0.9599707

00:43:32.619 --> 00:43:33.819 not really associated with the  
NOTE Confidence: 0.9599707

00:43:33.819 --> 00:43:35.599 change, over over time.  
NOTE Confidence: 0.95707124

00:43:37.055 --> 00:43:38.575 Cuddle limitations. There are a  
NOTE Confidence: 0.95707124

00:43:38.575 --> 00:43:40.275 host of limitations here. Right?  
NOTE Confidence: 0.95707124

00:43:40.335 --> 00:43:40.994 The generalizability  
NOTE Confidence: 0.9635266

00:43:41.295 --> 00:43:42.094 is limited. This is a  
NOTE Confidence: 0.9635266

00:43:42.094 --> 00:43:42.835 really undersourced  
NOTE Confidence: 0.97332966

00:43:43.454 --> 00:43:44.974 and predominantly black sample. It's  
NOTE Confidence: 0.97332966

00:43:44.974 --> 00:43:46.755 about ninety percent, black.  
NOTE Confidence: 0.95608866

00:43:47.694 --> 00:43:49.410 While it's somewhat large for  
NOTE Confidence: 0.95608866

00:43:49.410 --> 00:43:50.050 a, you know, a study  
NOTE Confidence: 0.95608866

00:43:50.050 --> 00:43:51.329 of prenatal, and we're collecting  
NOTE Confidence: 0.95608866

00:43:51.329 --> 00:43:52.690 neonatal neuroimaging data on them  
NOTE Confidence: 0.95608866

00:43:52.690 --> 00:43:53.489 in their first month of  
NOTE Confidence: 0.95608866

00:43:53.489 --> 00:43:53.989 life,

NOTE Confidence: 0.94899535  
00:43:54.530 --> 00:43:55.810 and then we're following them  
NOTE Confidence: 0.94899535  
00:43:55.810 --> 00:43:56.849 and we're just getting a  
NOTE Confidence: 0.94899535  
00:43:56.849 --> 00:43:58.130 renewal, we think, to follow  
NOTE Confidence: 0.94899535  
00:43:58.130 --> 00:43:59.329 the month until age five  
NOTE Confidence: 0.94899535  
00:43:59.329 --> 00:44:00.450 and six. It's still a  
NOTE Confidence: 0.94899535  
00:44:00.450 --> 00:44:01.890 relatively small sample, so we  
NOTE Confidence: 0.94899535  
00:44:01.890 --> 00:44:02.710 might be underpowered.  
NOTE Confidence: 0.9852428  
00:44:03.614 --> 00:44:04.735 And then our phenotyping and  
NOTE Confidence: 0.9852428  
00:44:04.735 --> 00:44:06.015 our frequency of assessment was  
NOTE Confidence: 0.9852428  
00:44:06.015 --> 00:44:06.515 constrained.  
NOTE Confidence: 0.98652536  
00:44:06.975 --> 00:44:08.114 So we have this neuroimaging  
NOTE Confidence: 0.98652536  
00:44:08.175 --> 00:44:09.295 data from zero to one  
NOTE Confidence: 0.98652536  
00:44:09.295 --> 00:44:09.795 month,  
NOTE Confidence: 0.9606571  
00:44:10.255 --> 00:44:11.395 and then we have behavioral  
NOTE Confidence: 0.9606571  
00:44:11.455 --> 00:44:12.815 assessments at six, twelve, and  
NOTE Confidence: 0.9606571

00:44:12.815 --> 00:44:13.935 eighteen months, and then our  
NOTE Confidence: 0.9606571

00:44:13.935 --> 00:44:15.855 renewal grants, would be getting  
NOTE Confidence: 0.9606571

00:44:15.855 --> 00:44:17.055 imaging at five and six  
NOTE Confidence: 0.9606571

00:44:17.055 --> 00:44:18.495 and behavior there. So there's,  
NOTE Confidence: 0.9606571

00:44:18.495 --> 00:44:19.110 you know,  
NOTE Confidence: 0.99337006

00:44:19.670 --> 00:44:20.470 where there's a lot of  
NOTE Confidence: 0.99337006

00:44:20.470 --> 00:44:21.510 development going on, we're gonna  
NOTE Confidence: 0.99337006

00:44:21.510 --> 00:44:22.310 have some gaps in our  
NOTE Confidence: 0.99337006

00:44:22.310 --> 00:44:23.450 in our study here.  
NOTE Confidence: 0.9770588

00:44:24.550 --> 00:44:25.510 So with that, I do  
NOTE Confidence: 0.9770588

00:44:25.510 --> 00:44:26.890 wanna just briefly mention  
NOTE Confidence: 0.9710938

00:44:27.350 --> 00:44:28.950 the HPCD study. So this  
NOTE Confidence: 0.9710938

00:44:28.950 --> 00:44:30.010 is another national,  
NOTE Confidence: 0.9680267

00:44:30.390 --> 00:44:31.270 study that was kind of  
NOTE Confidence: 0.9680267

00:44:31.270 --> 00:44:33.195 inspired by ABCD. It is  
NOTE Confidence: 0.9680267

00:44:33.195 --> 00:44:34.395 across twenty five sites with

NOTE Confidence: 0.9680267  
00:44:34.395 --> 00:44:35.355 one of the sites being  
NOTE Confidence: 0.9680267  
00:44:35.355 --> 00:44:36.335 us here at WashU  
NOTE Confidence: 0.9503015  
00:44:36.635 --> 00:44:37.515 that are trying to recruit  
NOTE Confidence: 0.9503015  
00:44:37.515 --> 00:44:38.955 around seven thousand seventy two  
NOTE Confidence: 0.9503015  
00:44:38.955 --> 00:44:40.175 hundred pregnant individuals.  
NOTE Confidence: 0.9767257  
00:44:41.114 --> 00:44:42.235 Twenty five percent of them  
NOTE Confidence: 0.9767257  
00:44:42.235 --> 00:44:43.835 with substance use, and this  
NOTE Confidence: 0.9767257  
00:44:43.835 --> 00:44:45.114 would be substance use qualified  
NOTE Confidence: 0.9767257  
00:44:45.114 --> 00:44:47.035 as opioids, tobacco, alcohol, or  
NOTE Confidence: 0.9767257  
00:44:47.035 --> 00:44:47.535 cannabis.  
NOTE Confidence: 0.94227666  
00:44:48.170 --> 00:44:49.610 And then following their offspring  
NOTE Confidence: 0.94227666  
00:44:49.610 --> 00:44:51.310 up until age ten and  
NOTE Confidence: 0.9704374  
00:44:51.610 --> 00:44:53.150 hopefully beyond that even.  
NOTE Confidence: 0.9532251  
00:44:53.770 --> 00:44:54.810 And within this, we're doing  
NOTE Confidence: 0.9532251  
00:44:54.810 --> 00:44:56.090 a lot of intensive sampling  
NOTE Confidence: 0.9532251

00:44:56.090 --> 00:44:57.130 in early life. So right  
NOTE Confidence: 0.9532251

00:44:57.130 --> 00:44:57.770 here, you can see our  
NOTE Confidence: 0.9532251

00:44:57.770 --> 00:44:58.890 first visit comes with the  
NOTE Confidence: 0.9532251

00:44:59.050 --> 00:45:00.350 typically the second trimester,  
NOTE Confidence: 0.94981277

00:45:00.954 --> 00:45:02.315 and then visit two has  
NOTE Confidence: 0.94981277

00:45:02.315 --> 00:45:03.674 neuroimaging and a bunch of,  
NOTE Confidence: 0.94981277

00:45:03.915 --> 00:45:05.515 you know, physiological measures and  
NOTE Confidence: 0.94981277

00:45:05.515 --> 00:45:07.275 biosamples and the like at,  
NOTE Confidence: 0.94981277

00:45:07.594 --> 00:45:08.795 zero to two as a  
NOTE Confidence: 0.94981277

00:45:08.795 --> 00:45:09.915 neonate at zero to one  
NOTE Confidence: 0.94981277

00:45:09.915 --> 00:45:11.035 month. And then we follow  
NOTE Confidence: 0.94981277

00:45:11.035 --> 00:45:12.635 them at potentially through infancy  
NOTE Confidence: 0.94981277

00:45:12.635 --> 00:45:13.515 and then start to spread  
NOTE Confidence: 0.94981277

00:45:13.515 --> 00:45:14.714 these assessments out every year,  
NOTE Confidence: 0.94981277

00:45:14.714 --> 00:45:16.029 year and a half. We're  
NOTE Confidence: 0.94981277

00:45:16.029 --> 00:45:17.309 working on the renewal grant

NOTE Confidence: 0.94981277  
00:45:17.309 --> 00:45:18.349 for it right now, so  
NOTE Confidence: 0.94981277  
00:45:18.349 --> 00:45:19.549 the the exact frequency is  
NOTE Confidence: 0.94981277  
00:45:19.549 --> 00:45:20.369 a little unclear,  
NOTE Confidence: 0.924189  
00:45:21.150 --> 00:45:22.609 still as it goes beyond  
NOTE Confidence: 0.924189  
00:45:22.750 --> 00:45:23.569 visit six.  
NOTE Confidence: 0.92263  
00:45:24.109 --> 00:45:25.329 But we are getting biological  
NOTE Confidence: 0.92263  
00:45:25.469 --> 00:45:26.750 data from these. Eleven sites,  
NOTE Confidence: 0.92263  
00:45:26.750 --> 00:45:28.029 including ours, are also collecting  
NOTE Confidence: 0.92263  
00:45:28.029 --> 00:45:30.130 placental samples in core tissue,  
NOTE Confidence: 0.92263  
00:45:30.269 --> 00:45:31.215 in cord blood in the  
NOTE Confidence: 0.92263  
00:45:31.215 --> 00:45:32.335 leg. So I hope that  
NOTE Confidence: 0.92263  
00:45:32.335 --> 00:45:33.215 that that will be really  
NOTE Confidence: 0.92263  
00:45:33.215 --> 00:45:34.655 useful for better characterizing the  
NOTE Confidence: 0.92263  
00:45:34.655 --> 00:45:35.715 intrauterine environment.  
NOTE Confidence: 0.9801331  
00:45:37.215 --> 00:45:38.415 But so I'm really excited  
NOTE Confidence: 0.9801331

00:45:38.415 --> 00:45:39.135 about looking at these data.

NOTE Confidence: 0.9801331

00:45:39.135 --> 00:45:39.855 I think these data may

NOTE Confidence: 0.9801331

00:45:39.855 --> 00:45:40.815 be more, you know, limited

NOTE Confidence: 0.9801331

00:45:40.815 --> 00:45:42.095 for looking at cannabis specifically,

NOTE Confidence: 0.9801331

00:45:42.095 --> 00:45:43.135 although that is the most

NOTE Confidence: 0.9801331

00:45:43.135 --> 00:45:44.975 frequently used, you know, substance

NOTE Confidence: 0.9801331

00:45:44.975 --> 00:45:46.050 in this this sample out

NOTE Confidence: 0.9801331

00:45:46.210 --> 00:45:47.890 you know, in isolation too.

NOTE Confidence: 0.9801331

00:45:47.890 --> 00:45:48.610 So I'm hopeful that it

NOTE Confidence: 0.9801331

00:45:48.610 --> 00:45:50.130 may be useful there. But

NOTE Confidence: 0.9801331

00:45:50.130 --> 00:45:51.270 there's a lot of comorbid

NOTE Confidence: 0.9801331

00:45:51.330 --> 00:45:51.570 use.

NOTE Confidence: 0.97506315

00:45:52.130 --> 00:45:53.010 And then just one other

NOTE Confidence: 0.97506315

00:45:53.010 --> 00:45:54.050 thing for the sample is

NOTE Confidence: 0.97506315

00:45:54.050 --> 00:45:54.550 that,

NOTE Confidence: 0.9889962

00:45:55.010 --> 00:45:56.210 we're really pushing our opioid

NOTE Confidence: 0.9889962

00:45:56.210 --> 00:45:57.410 recruitment right now. We're trying

NOTE Confidence: 0.9889962

00:45:57.410 --> 00:45:58.210 to get twelve and a

NOTE Confidence: 0.9889962

00:45:58.210 --> 00:45:59.250 half percent of the sample

NOTE Confidence: 0.9889962

00:45:59.250 --> 00:46:00.469 to have opioid recruitment.

NOTE Confidence: 0.9259434

00:46:01.335 --> 00:46:02.455 So there is a a

NOTE Confidence: 0.9259434

00:46:02.455 --> 00:46:03.655 lot of the additional cases

NOTE Confidence: 0.9259434

00:46:03.655 --> 00:46:04.295 that are gonna be added,

NOTE Confidence: 0.9259434

00:46:04.295 --> 00:46:05.415 I think, are gonna have,

NOTE Confidence: 0.9259434

00:46:05.575 --> 00:46:06.475 some some comorbid,

NOTE Confidence: 0.773181

00:46:07.255 --> 00:46:08.395 treat, uses

NOTE Confidence: 0.94592714

00:46:08.695 --> 00:46:10.295 as well. But these data

NOTE Confidence: 0.94592714

00:46:10.295 --> 00:46:11.335 will be made available in

NOTE Confidence: 0.94592714

00:46:11.335 --> 00:46:12.695 the near future. We're thinking

NOTE Confidence: 0.94592714

00:46:12.695 --> 00:46:14.075 January, but all of the

NOTE Confidence: 0.94592714

00:46:14.295 --> 00:46:15.490 the hiccups that NIH has

NOTE Confidence: 0.94592714

00:46:15.490 --> 00:46:16.210 placed in this with some  
NOTE Confidence: 0.94592714

00:46:16.210 --> 00:46:17.090 of the new administration and  
NOTE Confidence: 0.94592714

00:46:17.090 --> 00:46:17.970 this compliance and all of  
NOTE Confidence: 0.94592714

00:46:17.970 --> 00:46:18.850 that is slowing this down.  
NOTE Confidence: 0.94592714

00:46:18.850 --> 00:46:19.890 So I'm hopeful that at  
NOTE Confidence: 0.94592714

00:46:19.890 --> 00:46:21.510 this summer, at least, hopefully,  
NOTE Confidence: 0.94592714

00:46:21.650 --> 00:46:22.690 these data will be released.  
NOTE Confidence: 0.94592714

00:46:22.690 --> 00:46:23.730 And, again, these are are  
NOTE Confidence: 0.94592714

00:46:23.730 --> 00:46:25.890 available to anybody. So, would  
NOTE Confidence: 0.94592714

00:46:25.890 --> 00:46:27.410 strongly encourage people to to  
NOTE Confidence: 0.94592714

00:46:27.410 --> 00:46:28.905 work with these data. As  
NOTE Confidence: 0.94592714

00:46:28.905 --> 00:46:29.945 far as future directions,  
NOTE Confidence: 0.9455217

00:46:30.985 --> 00:46:32.525 with Emma Johnson, who's  
NOTE Confidence: 0.9191972

00:46:33.225 --> 00:46:34.665 a assistant professor here, we  
NOTE Confidence: 0.9191972

00:46:34.665 --> 00:46:37.005 have collected placental samples in  
NOTE Confidence: 0.8173108

00:46:37.385 --> 00:46:38.525 our CUDL dataset,

NOTE Confidence: 0.93363494  
00:46:38.985 --> 00:46:40.525 and we have generated a  
NOTE Confidence: 0.93363494  
00:46:40.665 --> 00:46:41.945 methylation data from them. So  
NOTE Confidence: 0.93363494  
00:46:41.945 --> 00:46:43.065 we're very curious about looking  
NOTE Confidence: 0.93363494  
00:46:43.065 --> 00:46:43.725 at methylation  
NOTE Confidence: 0.9807702  
00:46:44.265 --> 00:46:45.279 and, you know, looking at  
NOTE Confidence: 0.9807702  
00:46:45.279 --> 00:46:46.660 pathways that methylation  
NOTE Confidence: 0.9466286  
00:46:47.200 --> 00:46:48.000 may be implicated in and  
NOTE Confidence: 0.9466286  
00:46:48.000 --> 00:46:48.680 seeing if some of those,  
NOTE Confidence: 0.9466286  
00:46:48.680 --> 00:46:49.839 you know, align with some  
NOTE Confidence: 0.9466286  
00:46:49.839 --> 00:46:51.119 of what Yasmin Herb's group  
NOTE Confidence: 0.9466286  
00:46:51.119 --> 00:46:52.420 has has found and  
NOTE Confidence: 0.9254017  
00:46:52.960 --> 00:46:54.000 and the like. And then  
NOTE Confidence: 0.9254017  
00:46:54.000 --> 00:46:55.200 also what I'm really curious  
NOTE Confidence: 0.9254017  
00:46:55.200 --> 00:46:56.160 about doing there is seeing  
NOTE Confidence: 0.9254017  
00:46:56.160 --> 00:46:57.155 if there's enrichment  
NOTE Confidence: 0.98193973

00:46:57.614 --> 00:46:58.655 in genes. So, like, is  
NOTE Confidence: 0.98193973

00:46:58.655 --> 00:47:00.575 there enrichment for methylation signatures  
NOTE Confidence: 0.98193973

00:47:00.575 --> 00:47:02.094 in genes that are then  
NOTE Confidence: 0.98193973

00:47:02.094 --> 00:47:03.614 associated with genome wide association  
NOTE Confidence: 0.98193973

00:47:03.614 --> 00:47:05.295 studies of psychopathology, for example?  
NOTE Confidence: 0.98193973

00:47:05.295 --> 00:47:06.175 So are we seeing that  
NOTE Confidence: 0.98193973

00:47:06.175 --> 00:47:07.395 the the genes are differentially  
NOTE Confidence: 0.98193973

00:47:07.535 --> 00:47:08.035 impacted?  
NOTE Confidence: 0.9322551

00:47:08.975 --> 00:47:09.855 We are working with some  
NOTE Confidence: 0.9322551

00:47:09.855 --> 00:47:11.395 neural novel measures of neuroinflammation  
NOTE Confidence: 0.9322551

00:47:11.614 --> 00:47:13.690 using some diffusion weighted data.  
NOTE Confidence: 0.9322551

00:47:13.750 --> 00:47:15.190 Yong Wang here has developed  
NOTE Confidence: 0.9322551

00:47:15.190 --> 00:47:16.549 what's known as DBSI or  
NOTE Confidence: 0.9322551

00:47:16.549 --> 00:47:18.789 diffusion basis spectrum imaging, and  
NOTE Confidence: 0.9322551

00:47:18.789 --> 00:47:20.170 has some really nice validation  
NOTE Confidence: 0.9322551

00:47:20.230 --> 00:47:22.069 data showing that these indices

NOTE Confidence: 0.9322551  
00:47:22.069 --> 00:47:23.269 seem to correlate really well  
NOTE Confidence: 0.9322551  
00:47:23.269 --> 00:47:24.410 with, you know,  
NOTE Confidence: 0.9911183  
00:47:24.725 --> 00:47:25.225 immunohistochemistry  
NOTE Confidence: 0.83760506  
00:47:25.844 --> 00:47:26.344 stains,  
NOTE Confidence: 0.8916588  
00:47:26.805 --> 00:47:27.785 measures of cellularity,  
NOTE Confidence: 0.967386  
00:47:28.325 --> 00:47:29.445 and some rodent models and  
NOTE Confidence: 0.967386  
00:47:29.445 --> 00:47:30.245 the like. So we're starting  
NOTE Confidence: 0.967386  
00:47:30.245 --> 00:47:30.885 to work with some of  
NOTE Confidence: 0.967386  
00:47:30.885 --> 00:47:32.085 those data, and then we  
NOTE Confidence: 0.967386  
00:47:32.085 --> 00:47:33.285 are working on some,  
NOTE Confidence: 0.97043425  
00:47:34.245 --> 00:47:35.685 inflammation data in kids. And  
NOTE Confidence: 0.97043425  
00:47:35.685 --> 00:47:36.660 we're also working on some  
NOTE Confidence: 0.97043425  
00:47:36.819 --> 00:47:37.780 stimulated. So not just looking  
NOTE Confidence: 0.97043425  
00:47:37.780 --> 00:47:39.059 at basal circulating levels, but  
NOTE Confidence: 0.97043425  
00:47:39.059 --> 00:47:39.700 if you hit it with  
NOTE Confidence: 0.97043425

00:47:39.700 --> 00:47:41.000 a pathogen like LPS,  
NOTE Confidence: 0.9903133

00:47:41.539 --> 00:47:42.339 you know, what is the  
NOTE Confidence: 0.9903133

00:47:42.339 --> 00:47:43.780 capacity it has to respond  
NOTE Confidence: 0.9903133

00:47:43.780 --> 00:47:44.440 to this?  
NOTE Confidence: 0.9508072

00:47:44.739 --> 00:47:45.859 And then, you know, obviously,  
NOTE Confidence: 0.9508072

00:47:45.859 --> 00:47:46.819 we're very interested in winding  
NOTE Confidence: 0.9508072

00:47:46.819 --> 00:47:47.619 the clock back and looking  
NOTE Confidence: 0.9508072

00:47:47.619 --> 00:47:49.299 at these neonatal and infant,  
NOTE Confidence: 0.9695798

00:47:49.825 --> 00:47:51.425 and young child MRI. And  
NOTE Confidence: 0.9695798

00:47:51.425 --> 00:47:52.385 then outside of that, you  
NOTE Confidence: 0.9695798

00:47:52.385 --> 00:47:53.265 know, there is a sort  
NOTE Confidence: 0.9695798

00:47:53.265 --> 00:47:53.844 of mating.  
NOTE Confidence: 0.9601984

00:47:54.305 --> 00:47:55.665 The, you know, individuals who  
NOTE Confidence: 0.9601984

00:47:55.665 --> 00:47:56.545 are pregnant who are using  
NOTE Confidence: 0.9601984

00:47:56.545 --> 00:47:57.045 cannabis  
NOTE Confidence: 0.94404054

00:47:57.585 --> 00:47:59.025 are likely with in relationships

NOTE Confidence: 0.94404054

00:47:59.025 --> 00:47:59.905 with are gonna be more

NOTE Confidence: 0.94404054

00:47:59.905 --> 00:48:01.185 likely to be in relationships

NOTE Confidence: 0.94404054

00:48:01.185 --> 00:48:02.625 with people with men who

NOTE Confidence: 0.94404054

00:48:02.625 --> 00:48:03.765 are using cannabis,

NOTE Confidence: 0.9874916

00:48:04.560 --> 00:48:06.239 perhaps while, sperm cells were

NOTE Confidence: 0.9874916

00:48:06.239 --> 00:48:06.900 being generated.

NOTE Confidence: 0.96713597

00:48:07.200 --> 00:48:08.480 And there is some, you

NOTE Confidence: 0.96713597

00:48:08.480 --> 00:48:10.400 know, interesting data suggesting some

NOTE Confidence: 0.96713597

00:48:10.400 --> 00:48:12.400 epigenetic signatures in sperm cells

NOTE Confidence: 0.96713597

00:48:12.400 --> 00:48:13.200 as well. So we're just

NOTE Confidence: 0.96713597

00:48:13.200 --> 00:48:14.960 starting a preliminary data data

NOTE Confidence: 0.96713597

00:48:14.960 --> 00:48:16.180 collection here where we're

NOTE Confidence: 0.86585873

00:48:17.265 --> 00:48:19.184 collecting, seminal fluid samples from,

NOTE Confidence: 0.86585873

00:48:19.344 --> 00:48:20.625 kind of heavy cannabis using

NOTE Confidence: 0.86585873

00:48:20.625 --> 00:48:22.085 men as well as controls.

NOTE Confidence: 0.92387897

00:48:22.545 --> 00:48:23.425 It was fun getting that  
NOTE Confidence: 0.92387897

00:48:23.425 --> 00:48:24.545 to our department and getting,  
NOTE Confidence: 0.95510626

00:48:25.344 --> 00:48:26.145 I can't remember what the  
NOTE Confidence: 0.95510626

00:48:26.145 --> 00:48:26.785 name of it is, but  
NOTE Confidence: 0.95510626

00:48:26.785 --> 00:48:28.145 some of the pornography website  
NOTE Confidence: 0.95510626

00:48:28.145 --> 00:48:28.785 thing that we had to  
NOTE Confidence: 0.95510626

00:48:28.785 --> 00:48:29.744 get to help men do  
NOTE Confidence: 0.95510626

00:48:29.744 --> 00:48:30.704 this and getting funding from  
NOTE Confidence: 0.95510626

00:48:30.704 --> 00:48:31.650 that from our university is  
NOTE Confidence: 0.95510626

00:48:31.650 --> 00:48:32.930 quite quite quite the fun,  
NOTE Confidence: 0.95510626

00:48:32.930 --> 00:48:34.230 but we're we're getting there.  
NOTE Confidence: 0.9387248

00:48:34.530 --> 00:48:35.730 But we're really interested in  
NOTE Confidence: 0.9387248

00:48:35.730 --> 00:48:36.530 looking at some of these,  
NOTE Confidence: 0.9387248

00:48:36.849 --> 00:48:38.369 you know, paternal germline cells  
NOTE Confidence: 0.9387248

00:48:38.369 --> 00:48:38.869 too,  
NOTE Confidence: 0.9125334

00:48:39.410 --> 00:48:40.290 and, plus, why I think

NOTE Confidence: 0.9125334  
00:48:40.290 --> 00:48:41.410 genetic signatures. So with that  
NOTE Confidence: 0.9125334  
00:48:41.410 --> 00:48:42.690 said, I wanna thank everybody  
NOTE Confidence: 0.9125334  
00:48:42.690 --> 00:48:43.569 in the lab, acknowledge them,  
NOTE Confidence: 0.9125334  
00:48:43.569 --> 00:48:44.994 and acknowledge our sources, and  
NOTE Confidence: 0.9125334  
00:48:44.994 --> 00:48:45.955 thank you all for listening.  
NOTE Confidence: 0.9125334  
00:48:45.955 --> 00:48:46.915 I'd be happy to to  
NOTE Confidence: 0.9125334  
00:48:46.915 --> 00:48:47.734 chat further.  
NOTE Confidence: 0.91802144  
00:48:52.035 --> 00:48:53.635 Thanks, Ryan. That was,  
NOTE Confidence: 0.9836698  
00:48:54.114 --> 00:48:55.094 that was fascinating.  
NOTE Confidence: 0.987154  
00:48:56.035 --> 00:48:57.360 I'm inviting people to ask  
NOTE Confidence: 0.987154  
00:48:57.440 --> 00:48:57.840 questions.  
NOTE Confidence: 0.9913626  
00:48:58.320 --> 00:48:59.040 You know, if you can  
NOTE Confidence: 0.9913626  
00:48:59.040 --> 00:49:00.160 either put questions in the  
NOTE Confidence: 0.9913626  
00:49:00.160 --> 00:49:00.660 chat  
NOTE Confidence: 0.9502728  
00:49:00.960 --> 00:49:02.480 or you can unmute yourself  
NOTE Confidence: 0.9502728

00:49:02.480 --> 00:49:04.400 and identify yourself and ask  
NOTE Confidence: 0.9502728

00:49:04.400 --> 00:49:05.060 the question.  
NOTE Confidence: 0.853272

00:49:08.880 --> 00:49:09.760 So May I ask you  
NOTE Confidence: 0.853272

00:49:09.760 --> 00:49:11.280 the first question? Go ahead,  
NOTE Confidence: 0.853272

00:49:11.280 --> 00:49:12.180 Annie. Anita.  
NOTE Confidence: 0.9969939

00:49:12.725 --> 00:49:13.045 Hello.  
NOTE Confidence: 0.95954865

00:49:13.765 --> 00:49:15.525 I'm Anita. I'm an assistant  
NOTE Confidence: 0.95954865

00:49:15.525 --> 00:49:17.205 professor of psychiatry here working  
NOTE Confidence: 0.95954865

00:49:17.205 --> 00:49:17.945 with Cyril.  
NOTE Confidence: 0.9764424

00:49:19.285 --> 00:49:21.385 So if I remember correctly,  
NOTE Confidence: 0.9764424

00:49:21.525 --> 00:49:22.025 the  
NOTE Confidence: 0.9130028

00:49:22.485 --> 00:49:24.565 individuals who who were using  
NOTE Confidence: 0.9130028

00:49:24.565 --> 00:49:25.705 cannabis during pregnancy  
NOTE Confidence: 0.99411744

00:49:26.085 --> 00:49:27.305 also had lower,  
NOTE Confidence: 0.975695

00:49:28.040 --> 00:49:28.940 like, financial,  
NOTE Confidence: 0.80774814

00:49:29.480 --> 00:49:30.859 social economic. Absolutely.

NOTE Confidence: 0.9162559  
00:49:31.719 --> 00:49:32.920 We're very able to maybe  
NOTE Confidence: 0.9162559  
00:49:32.920 --> 00:49:33.420 compare  
NOTE Confidence: 0.9468476  
00:49:33.880 --> 00:49:35.400 at least a relative risk  
NOTE Confidence: 0.9468476  
00:49:35.400 --> 00:49:36.540 of, socioeconomic,  
NOTE Confidence: 0.837056  
00:49:39.000 --> 00:49:40.839 maybe stress on kinda, like,  
NOTE Confidence: 0.837056  
00:49:41.320 --> 00:49:42.920 and compare it and, like,  
NOTE Confidence: 0.837056  
00:49:42.920 --> 00:49:43.420 order  
NOTE Confidence: 0.9484676  
00:49:43.755 --> 00:49:45.275 contribution of that in the  
NOTE Confidence: 0.9484676  
00:49:45.434 --> 00:49:46.474 Yeah. Yeah. So so we  
NOTE Confidence: 0.9484676  
00:49:46.474 --> 00:49:47.594 did so one, our analysis  
NOTE Confidence: 0.9484676  
00:49:47.594 --> 00:49:48.474 did have SES as a  
NOTE Confidence: 0.9484676  
00:49:48.474 --> 00:49:49.674 covariate along a host of  
NOTE Confidence: 0.9484676  
00:49:49.674 --> 00:49:50.954 host of other ones. The  
NOTE Confidence: 0.9484676  
00:49:50.954 --> 00:49:51.755 other thing we did was  
NOTE Confidence: 0.9484676  
00:49:51.755 --> 00:49:53.515 we did supplemental analysis of  
NOTE Confidence: 0.9484676

00:49:53.515 --> 00:49:54.894 propensity score weighting.  
NOTE Confidence: 0.9683488

00:49:55.434 --> 00:49:56.635 And we did propensity score  
NOTE Confidence: 0.9683488

00:49:56.635 --> 00:49:57.450 matching as well, which is  
NOTE Confidence: 0.9683488

00:49:57.530 --> 00:49:58.410 where essentially you can think  
NOTE Confidence: 0.9683488

00:49:58.410 --> 00:49:59.369 of it. A simplest way  
NOTE Confidence: 0.9683488

00:49:59.369 --> 00:50:00.250 of thinking of it is,  
NOTE Confidence: 0.9683488

00:50:00.250 --> 00:50:01.530 like, you're generating, like, a  
NOTE Confidence: 0.9683488

00:50:01.530 --> 00:50:02.570 factor of all your covariates,  
NOTE Confidence: 0.9683488

00:50:02.570 --> 00:50:03.770 so you are not loading  
NOTE Confidence: 0.9683488

00:50:03.770 --> 00:50:04.650 up your model with so  
NOTE Confidence: 0.9683488

00:50:04.650 --> 00:50:05.930 many covariates. It can be  
NOTE Confidence: 0.9683488

00:50:05.930 --> 00:50:06.650 a nice way that you  
NOTE Confidence: 0.9683488

00:50:06.650 --> 00:50:08.489 don't hurt your statistical models  
NOTE Confidence: 0.9683488

00:50:08.489 --> 00:50:09.369 as badly with, you know,  
NOTE Confidence: 0.9683488

00:50:09.369 --> 00:50:10.730 having so many covariates, but  
NOTE Confidence: 0.9683488

00:50:10.730 --> 00:50:11.450 I also don't like it

NOTE Confidence: 0.9683488

00:50:11.450 --> 00:50:12.089 as much because then you

NOTE Confidence: 0.9683488

00:50:12.089 --> 00:50:13.210 can't see the associations of

NOTE Confidence: 0.9683488

00:50:13.210 --> 00:50:14.645 those covariates with the outcomes,

NOTE Confidence: 0.9980769

00:50:15.265 --> 00:50:16.165 as as clearly.

NOTE Confidence: 0.9633308

00:50:17.105 --> 00:50:18.145 So we we do see

NOTE Confidence: 0.9633308

00:50:18.145 --> 00:50:19.344 those associations there. We do

NOTE Confidence: 0.9633308

00:50:19.344 --> 00:50:19.905 see it if we do

NOTE Confidence: 0.9633308

00:50:19.905 --> 00:50:21.344 propensity score matching where we

NOTE Confidence: 0.9633308

00:50:21.425 --> 00:50:22.065 you know, you can think

NOTE Confidence: 0.9633308

00:50:22.065 --> 00:50:22.625 of it as a one

NOTE Confidence: 0.9633308

00:50:22.625 --> 00:50:23.985 to one matching of, you

NOTE Confidence: 0.9633308

00:50:23.985 --> 00:50:26.065 know, across these, potentially confounding

NOTE Confidence: 0.9633308

00:50:26.065 --> 00:50:27.585 variables in the exposed versus

NOTE Confidence: 0.9633308

00:50:27.585 --> 00:50:28.245 the nonexposed,

NOTE Confidence: 0.94273645

00:50:28.650 --> 00:50:29.630 or if we do this

NOTE Confidence: 0.94273645

00:50:29.770 --> 00:50:31.770 propensity score weighty, which is,  
NOTE Confidence: 0.94273645

00:50:31.770 --> 00:50:32.650 you know, essentially, you could  
NOTE Confidence: 0.94273645

00:50:32.650 --> 00:50:33.289 think of it as getting,  
NOTE Confidence: 0.94273645

00:50:33.289 --> 00:50:34.250 like, a factor score for  
NOTE Confidence: 0.94273645

00:50:34.250 --> 00:50:35.710 everybody all across these covariates.  
NOTE Confidence: 0.96369827

00:50:36.890 --> 00:50:37.849 So we we do see  
NOTE Confidence: 0.96369827

00:50:37.849 --> 00:50:38.829 that they're independent  
NOTE Confidence: 0.9269918

00:50:39.130 --> 00:50:40.010 of of of that, but  
NOTE Confidence: 0.9269918

00:50:40.010 --> 00:50:40.750 it you know,  
NOTE Confidence: 0.9967822

00:50:41.395 --> 00:50:42.435 it you know, I'm not  
NOTE Confidence: 0.9967822

00:50:42.435 --> 00:50:43.895 convinced that it's not contributing.  
NOTE Confidence: 0.9803468

00:50:44.675 --> 00:50:45.955 Is there any, like because  
NOTE Confidence: 0.9803468

00:50:45.955 --> 00:50:47.575 there are some evidence that  
NOTE Confidence: 0.91387224

00:50:48.035 --> 00:50:48.775 the synergism  
NOTE Confidence: 0.9712239

00:50:49.235 --> 00:50:51.415 between the stress and cannabis  
NOTE Confidence: 0.9712239

00:50:51.475 --> 00:50:53.075 use may kinda likely to

NOTE Confidence: 0.9712239

00:50:53.075 --> 00:50:54.435 more psychosis. Is there any

NOTE Confidence: 0.9712239

00:50:54.675 --> 00:50:55.635 do you see any evidence

NOTE Confidence: 0.9712239

00:50:55.635 --> 00:50:56.910 of that? Yeah. I think

NOTE Confidence: 0.9712239

00:50:56.910 --> 00:50:58.430 that's a fascinating question. I

NOTE Confidence: 0.9712239

00:50:58.430 --> 00:50:59.150 wish we could look at

NOTE Confidence: 0.9712239

00:50:59.150 --> 00:51:00.190 it. I'm somebody who's very

NOTE Confidence: 0.9712239

00:51:00.190 --> 00:51:02.190 skeptical of interactions with with,

NOTE Confidence: 0.9712239

00:51:02.430 --> 00:51:03.630 small samples coming from a

NOTE Confidence: 0.9712239

00:51:03.630 --> 00:51:04.770 g by e world,

NOTE Confidence: 0.9277743

00:51:05.390 --> 00:51:05.950 and a lot of, you

NOTE Confidence: 0.9277743

00:51:05.950 --> 00:51:07.069 know, initial false positives. So

NOTE Confidence: 0.9277743

00:51:07.069 --> 00:51:07.630 I think we have to

NOTE Confidence: 0.9277743

00:51:07.630 --> 00:51:08.829 be really well powered because,

NOTE Confidence: 0.9277743

00:51:08.989 --> 00:51:09.565 you know, soon as we

NOTE Confidence: 0.9277743

00:51:09.565 --> 00:51:10.525 look at, you know, dividing

NOTE Confidence: 0.9277743

00:51:10.525 --> 00:51:11.405 things up by high stress,  
NOTE Confidence: 0.9277743

00:51:11.405 --> 00:51:12.925 low stress, prenatal cancer exposure,  
NOTE Confidence: 0.9277743

00:51:12.925 --> 00:51:14.285 no prenatal cancer exposure ourselves  
NOTE Confidence: 0.9277743

00:51:14.285 --> 00:51:15.325 are gonna get really, really  
NOTE Confidence: 0.9277743

00:51:15.325 --> 00:51:15.825 small.  
NOTE Confidence: 0.9578759

00:51:16.205 --> 00:51:17.165 And then I'm also a  
NOTE Confidence: 0.9578759

00:51:17.165 --> 00:51:18.364 firm believer that to fully  
NOTE Confidence: 0.9578759

00:51:18.364 --> 00:51:19.885 account for interaction compounds, you  
NOTE Confidence: 0.9578759

00:51:19.885 --> 00:51:21.245 have to do the covariant  
NOTE Confidence: 0.9578759

00:51:21.245 --> 00:51:22.445 of no interest by predictor  
NOTE Confidence: 0.9578759

00:51:22.445 --> 00:51:24.039 of interest interactions. So you'd  
NOTE Confidence: 0.9578759

00:51:24.039 --> 00:51:25.000 be wanting to, you know,  
NOTE Confidence: 0.9578759

00:51:25.000 --> 00:51:25.960 load your models up with  
NOTE Confidence: 0.9578759

00:51:25.960 --> 00:51:27.319 sex by, you know, cannabis  
NOTE Confidence: 0.9578759

00:51:27.319 --> 00:51:29.180 exposure, sex by stress exposure,  
NOTE Confidence: 0.9578759

00:51:29.400 --> 00:51:30.119 you know, all of those

NOTE Confidence: 0.9578759

00:51:30.119 --> 00:51:31.400 things. So I don't think

NOTE Confidence: 0.9578759

00:51:31.400 --> 00:51:32.279 we're there with a well

NOTE Confidence: 0.9578759

00:51:32.279 --> 00:51:33.480 powered sample enough, but I'm

NOTE Confidence: 0.9578759

00:51:33.480 --> 00:51:35.319 hopeful that HPCD actually may

NOTE Confidence: 0.9578759

00:51:35.319 --> 00:51:35.960 be able to get us

NOTE Confidence: 0.9578759

00:51:35.960 --> 00:51:36.920 there where we might be

NOTE Confidence: 0.9578759

00:51:36.920 --> 00:51:38.119 able to more reasonably look

NOTE Confidence: 0.9578759

00:51:38.119 --> 00:51:39.255 at some of those things.

NOTE Confidence: 0.9578759

00:51:39.255 --> 00:51:40.055 But I think you're like

NOTE Confidence: 0.9578759

00:51:40.295 --> 00:51:42.535 you're probably entirely correct. These

NOTE Confidence: 0.9578759

00:51:42.934 --> 00:51:43.974 all these associates are much

NOTE Confidence: 0.9578759

00:51:43.974 --> 00:51:44.934 more complex than we can

NOTE Confidence: 0.9578759

00:51:44.934 --> 00:51:45.594 look at,

NOTE Confidence: 0.98024976

00:51:45.974 --> 00:51:46.775 but we feel like we're

NOTE Confidence: 0.98024976

00:51:46.775 --> 00:51:47.494 able to look at more

NOTE Confidence: 0.98024976

00:51:47.494 --> 00:51:48.535 of these main effects now.  
NOTE Confidence: 0.98024976

00:51:48.535 --> 00:51:49.674 But I think there's likely  
NOTE Confidence: 0.98024976

00:51:49.734 --> 00:51:51.035 all kinds of, you know,  
NOTE Confidence: 0.8994959

00:51:51.950 --> 00:51:52.989 you know, gene by environment,  
NOTE Confidence: 0.8994959

00:51:52.989 --> 00:51:53.969 environment environment  
NOTE Confidence: 0.9743386

00:51:54.829 --> 00:51:56.510 interactions, and, you know, gene  
NOTE Confidence: 0.9743386

00:51:56.510 --> 00:51:57.710 environment correlation, I think, is  
NOTE Confidence: 0.9743386

00:51:57.710 --> 00:51:59.489 an underappreciated thing as well,  
NOTE Confidence: 0.9979386

00:52:00.269 --> 00:52:01.230 that is often not well  
NOTE Confidence: 0.9979386

00:52:01.230 --> 00:52:02.130 accounted for.  
NOTE Confidence: 0.9334319

00:52:02.910 --> 00:52:03.710 And we are starting to  
NOTE Confidence: 0.9334319

00:52:03.710 --> 00:52:04.349 work with some of these  
NOTE Confidence: 0.9334319

00:52:04.349 --> 00:52:05.713 data too with we can  
NOTE Confidence: 0.9334319

00:52:05.713 --> 00:52:07.059 look at a prenatal cannabis  
NOTE Confidence: 0.9334319

00:52:07.059 --> 00:52:08.674 exposure as well. But we're  
NOTE Confidence: 0.9334319

00:52:08.674 --> 00:52:10.020 starting to look at some

NOTE Confidence: 0.9334319  
00:52:10.020 --> 00:52:11.366 discordancies among the twin pairs  
NOTE Confidence: 0.9334319  
00:52:11.366 --> 00:52:12.712 and sibling pairs and a,  
NOTE Confidence: 0.9334319  
00:52:12.712 --> 00:52:14.058 b, c, d as well  
NOTE Confidence: 0.9334319  
00:52:14.058 --> 00:52:15.404 to try to, you know,  
NOTE Confidence: 0.9334319  
00:52:15.404 --> 00:52:16.750 better account for those sorts  
NOTE Confidence: 0.9334319  
00:52:16.750 --> 00:52:18.096 of confounds. Brian, I have  
NOTE Confidence: 0.9334319  
00:52:18.096 --> 00:52:19.711 a, great great talk. I  
NOTE Confidence: 0.9334319  
00:52:19.711 --> 00:52:21.770 have a fairly basic question.  
NOTE Confidence: 0.9334319  
00:52:21.770 --> 00:52:23.310 And could you comment on,  
NOTE Confidence: 0.91754717  
00:52:25.450 --> 00:52:26.890 how one might tease out  
NOTE Confidence: 0.91754717  
00:52:26.890 --> 00:52:28.030 the effects of  
NOTE Confidence: 0.9985746  
00:52:28.489 --> 00:52:28.989 the  
NOTE Confidence: 0.8359826  
00:52:29.610 --> 00:52:31.630 constituents of can of cannabis  
NOTE Confidence: 0.9962214  
00:52:32.505 --> 00:52:33.005 from,  
NOTE Confidence: 0.9424126  
00:52:33.944 --> 00:52:35.244 from just the pyrolysis  
NOTE Confidence: 0.86458635

00:52:35.545 --> 00:52:37.085 of herbal material,  
NOTE Confidence: 0.9631411

00:52:37.545 --> 00:52:39.305 and what contribution do these  
NOTE Confidence: 0.9631411

00:52:39.305 --> 00:52:41.625 play in whatever negative outcomes  
NOTE Confidence: 0.9631411

00:52:41.625 --> 00:52:43.144 that we're seeing? Yeah. I  
NOTE Confidence: 0.9631411

00:52:43.144 --> 00:52:44.184 think this is a great  
NOTE Confidence: 0.9631411

00:52:44.184 --> 00:52:45.030 question. I think that, you  
NOTE Confidence: 0.9631411

00:52:45.030 --> 00:52:46.150 know, the different constituents of  
NOTE Confidence: 0.9631411

00:52:46.150 --> 00:52:47.110 cannabis or all of the  
NOTE Confidence: 0.9631411

00:52:47.110 --> 00:52:48.550 additives, especially with, you know,  
NOTE Confidence: 0.9631411

00:52:48.550 --> 00:52:49.430 people that are using things  
NOTE Confidence: 0.9631411

00:52:49.430 --> 00:52:50.630 in different things, is this  
NOTE Confidence: 0.9631411

00:52:50.630 --> 00:52:51.670 from the cannabis, or is  
NOTE Confidence: 0.9631411

00:52:51.670 --> 00:52:52.550 it from these other things?  
NOTE Confidence: 0.9631411

00:52:52.550 --> 00:52:53.590 I think we totally don't  
NOTE Confidence: 0.9631411

00:52:53.590 --> 00:52:54.090 know.  
NOTE Confidence: 0.9325734

00:52:54.870 --> 00:52:55.750 There are you know, I

NOTE Confidence: 0.9325734

00:52:55.750 --> 00:52:56.655 mean, there there are being

NOTE Confidence: 0.9325734

00:52:56.815 --> 00:52:58.575 increasingly some commercial available things.

NOTE Confidence: 0.9325734

00:52:58.575 --> 00:53:00.335 And given the legal changes,

NOTE Confidence: 0.9325734

00:53:00.335 --> 00:53:01.215 I'm hopeful that we'll be

NOTE Confidence: 0.9325734

00:53:01.215 --> 00:53:02.175 able to better, you know,

NOTE Confidence: 0.9325734

00:53:02.175 --> 00:53:03.055 do this. But there are

NOTE Confidence: 0.9325734

00:53:03.055 --> 00:53:04.175 some studies where they're having

NOTE Confidence: 0.9325734

00:53:04.175 --> 00:53:05.475 people bring in their samples

NOTE Confidence: 0.9325734

00:53:05.614 --> 00:53:06.975 and quantifying it for these

NOTE Confidence: 0.9325734

00:53:06.975 --> 00:53:08.015 these different things. So I

NOTE Confidence: 0.9325734

00:53:08.015 --> 00:53:09.135 think that's really the best

NOTE Confidence: 0.9325734

00:53:09.135 --> 00:53:10.255 way forward. And some areas

NOTE Confidence: 0.9325734

00:53:10.255 --> 00:53:11.135 in your some studies in

NOTE Confidence: 0.9325734

00:53:11.135 --> 00:53:12.540 Europe have been done with

NOTE Confidence: 0.9325734

00:53:12.540 --> 00:53:13.420 with this to some degree

NOTE Confidence: 0.9325734

00:53:13.420 --> 00:53:14.000 as well.  
NOTE Confidence: 0.96980935  
00:53:14.540 --> 00:53:15.739 In our sample, most of  
NOTE Confidence: 0.96980935  
00:53:15.739 --> 00:53:16.780 our sample is still getting  
NOTE Confidence: 0.96980935  
00:53:16.780 --> 00:53:17.580 at more on the black  
NOTE Confidence: 0.96980935  
00:53:17.580 --> 00:53:18.860 market. So, you know, if  
NOTE Confidence: 0.96980935  
00:53:18.860 --> 00:53:19.739 we ask them to report  
NOTE Confidence: 0.96980935  
00:53:19.739 --> 00:53:20.780 on potency or any of  
NOTE Confidence: 0.96980935  
00:53:20.780 --> 00:53:21.980 those sorts of things as  
NOTE Confidence: 0.96980935  
00:53:21.980 --> 00:53:22.640 as well,  
NOTE Confidence: 0.9307511  
00:53:22.940 --> 00:53:23.835 we don't have, you know,  
NOTE Confidence: 0.9307511  
00:53:23.915 --> 00:53:25.035 great indices of of of  
NOTE Confidence: 0.9307511  
00:53:25.035 --> 00:53:25.994 that from our sample because  
NOTE Confidence: 0.9307511  
00:53:25.994 --> 00:53:27.055 they really don't know.  
NOTE Confidence: 0.99403155  
00:53:27.355 --> 00:53:27.994 So I think what we  
NOTE Confidence: 0.99403155  
00:53:27.994 --> 00:53:28.875 need to do is move  
NOTE Confidence: 0.99403155  
00:53:28.875 --> 00:53:29.835 to getting people to bring

NOTE Confidence: 0.99403155  
00:53:29.835 --> 00:53:31.455 it in and, you know,  
NOTE Confidence: 0.9023657  
00:53:32.555 --> 00:53:33.594 start to take a you  
NOTE Confidence: 0.9023657  
00:53:33.594 --> 00:53:35.035 know, start to actually analyze  
NOTE Confidence: 0.9023657  
00:53:35.035 --> 00:53:36.155 the constituents of what they're  
NOTE Confidence: 0.9023657  
00:53:36.155 --> 00:53:36.930 actually using.  
NOTE Confidence: 0.9815341  
00:53:37.489 --> 00:53:38.130 And then a lot of  
NOTE Confidence: 0.9815341  
00:53:38.130 --> 00:53:39.250 them are using, like, CBD  
NOTE Confidence: 0.9815341  
00:53:39.250 --> 00:53:40.130 products and all of that  
NOTE Confidence: 0.9815341  
00:53:40.130 --> 00:53:40.849 too. And I know it's  
NOTE Confidence: 0.9815341  
00:53:40.849 --> 00:53:41.809 typically seen as a very  
NOTE Confidence: 0.9815341  
00:53:41.809 --> 00:53:43.410 mundane thing, but I'm quite  
NOTE Confidence: 0.9815341  
00:53:43.410 --> 00:53:44.690 interested in trying to quantify,  
NOTE Confidence: 0.9815341  
00:53:44.690 --> 00:53:45.489 you know, some of that  
NOTE Confidence: 0.9815341  
00:53:45.489 --> 00:53:46.309 as as well.  
NOTE Confidence: 0.9576229  
00:53:46.849 --> 00:53:48.210 And then the other option,  
NOTE Confidence: 0.9576229

00:53:48.210 --> 00:53:49.569 obviously, in some things, it  
NOTE Confidence: 0.9576229

00:53:49.569 --> 00:53:50.450 just it's hard from a,  
NOTE Confidence: 0.9576229

00:53:50.450 --> 00:53:52.210 you know, a biomarker in  
NOTE Confidence: 0.9576229

00:53:52.210 --> 00:53:53.065 blood samples or or in  
NOTE Confidence: 0.9576229

00:53:53.065 --> 00:53:53.945 urine and the like. There's  
NOTE Confidence: 0.9576229

00:53:53.945 --> 00:53:55.864 just not great index indices  
NOTE Confidence: 0.9576229

00:53:55.864 --> 00:53:56.905 of these with regard to,  
NOTE Confidence: 0.9576229

00:53:56.905 --> 00:53:57.945 you know I think we  
NOTE Confidence: 0.9576229

00:53:57.945 --> 00:53:59.225 could look at highly frequent  
NOTE Confidence: 0.9576229

00:53:59.225 --> 00:54:00.105 users and get, you know,  
NOTE Confidence: 0.9576229

00:54:00.105 --> 00:54:01.305 really matched people according to  
NOTE Confidence: 0.9576229

00:54:01.305 --> 00:54:02.265 that and then use some  
NOTE Confidence: 0.9576229

00:54:02.265 --> 00:54:03.545 of those as indices of  
NOTE Confidence: 0.9576229

00:54:03.545 --> 00:54:04.844 kind of amount or frequency  
NOTE Confidence: 0.9577695

00:54:05.305 --> 00:54:06.765 of of exposure. But,  
NOTE Confidence: 0.9299938

00:54:07.370 --> 00:54:08.170 yeah, that's one of the

NOTE Confidence: 0.9299938

00:54:08.170 --> 00:54:09.850 big limitations also of of

NOTE Confidence: 0.9299938

00:54:09.850 --> 00:54:11.690 these, obviously, that I wish

NOTE Confidence: 0.9299938

00:54:11.690 --> 00:54:12.410 you could get better of,

NOTE Confidence: 0.9299938

00:54:12.410 --> 00:54:13.710 especially from an endocannabinoid

NOTE Confidence: 0.97333133

00:54:14.090 --> 00:54:15.230 system, perspective.

NOTE Confidence: 0.92733973

00:54:16.010 --> 00:54:17.450 And I'm quite curious personally

NOTE Confidence: 0.92733973

00:54:17.450 --> 00:54:18.989 about CB two and microglia

NOTE Confidence: 0.92733973

00:54:19.130 --> 00:54:20.190 and the like and inflammation.

NOTE Confidence: 0.92733973

00:54:20.250 --> 00:54:20.969 And I feel like it's

NOTE Confidence: 0.92733973

00:54:20.969 --> 00:54:21.790 a very understudied

NOTE Confidence: 0.9940417

00:54:22.250 --> 00:54:22.750 area.

NOTE Confidence: 0.93063605

00:54:23.505 --> 00:54:24.545 There is one study I'm

NOTE Confidence: 0.93063605

00:54:24.545 --> 00:54:26.244 working on with, Andrea Edlow

NOTE Confidence: 0.96831435

00:54:26.625 --> 00:54:27.665 at Harvard as well as

NOTE Confidence: 0.96831435

00:54:27.665 --> 00:54:28.704 a few other people where

NOTE Confidence: 0.96831435

00:54:28.704 --> 00:54:29.444 we are,  
NOTE Confidence: 0.9564951

00:54:29.984 --> 00:54:31.585 getting placental samples, and then  
NOTE Confidence: 0.9564951

00:54:31.585 --> 00:54:32.704 her lab is developing them  
NOTE Confidence: 0.9564951

00:54:32.704 --> 00:54:33.444 into microglia,  
NOTE Confidence: 0.92977756

00:54:34.305 --> 00:54:36.385 individualized microglia. It's across it's  
NOTE Confidence: 0.92977756

00:54:36.385 --> 00:54:38.170 more to opioid, but we're  
NOTE Confidence: 0.92977756

00:54:38.170 --> 00:54:38.890 gonna have a fair number  
NOTE Confidence: 0.92977756

00:54:38.890 --> 00:54:39.850 of cannabis users in that  
NOTE Confidence: 0.92977756

00:54:39.850 --> 00:54:40.989 too. It's from the HPCB  
NOTE Confidence: 0.92977756

00:54:41.050 --> 00:54:42.170 study, so a kind of  
NOTE Confidence: 0.92977756

00:54:42.170 --> 00:54:43.050 a sub study. So I'm  
NOTE Confidence: 0.92977756

00:54:43.050 --> 00:54:44.250 hopeful that some of those  
NOTE Confidence: 0.92977756

00:54:44.250 --> 00:54:45.290 approaches may be useful as  
NOTE Confidence: 0.92977756

00:54:45.290 --> 00:54:46.030 well. And then,  
NOTE Confidence: 0.92878294

00:54:46.489 --> 00:54:47.530 any studies that are collecting  
NOTE Confidence: 0.92878294

00:54:47.530 --> 00:54:48.590 the delivery biospecimens,

NOTE Confidence: 0.96587384  
00:54:49.930 --> 00:54:51.654 you know, maybe getting some  
NOTE Confidence: 0.96587384  
00:54:51.654 --> 00:54:53.414 better, indices of this through  
NOTE Confidence: 0.96587384  
00:54:53.414 --> 00:54:54.875 the umbilical cord tissue.  
NOTE Confidence: 0.91800076  
00:54:56.454 --> 00:54:57.414 But, yeah, I think it's  
NOTE Confidence: 0.91800076  
00:54:57.414 --> 00:54:58.395 a a big limitation.  
NOTE Confidence: 0.9796165  
00:55:00.454 --> 00:55:01.194 Other questions?  
NOTE Confidence: 0.97596663  
00:55:02.055 --> 00:55:03.174 I see a question in  
NOTE Confidence: 0.97596663  
00:55:03.174 --> 00:55:04.775 the chat from Uri. Do  
NOTE Confidence: 0.97596663  
00:55:04.775 --> 00:55:06.440 you wanna unmute and ask  
NOTE Confidence: 0.97596663  
00:55:06.440 --> 00:55:07.099 your question?  
NOTE Confidence: 0.9981433  
00:55:09.960 --> 00:55:11.260 Yes. I can do that.  
NOTE Confidence: 0.99772173  
00:55:12.359 --> 00:55:13.239 First of all, thank you  
NOTE Confidence: 0.99772173  
00:55:13.239 --> 00:55:14.200 very much for your talk.  
NOTE Confidence: 0.99772173  
00:55:14.200 --> 00:55:16.059 It was really, really interesting.  
NOTE Confidence: 0.97187907  
00:55:17.239 --> 00:55:18.279 Maybe you said it. I'm  
NOTE Confidence: 0.97187907

00:55:18.279 --> 00:55:19.724 not sure. You said it  
NOTE Confidence: 0.97187907

00:55:19.724 --> 00:55:20.444 about the last,  
NOTE Confidence: 0.9573014

00:55:20.844 --> 00:55:21.964 slide you showed, but in  
NOTE Confidence: 0.9573014

00:55:21.964 --> 00:55:23.105 general, did you  
NOTE Confidence: 0.9958131

00:55:23.885 --> 00:55:24.864 look for differences  
NOTE Confidence: 0.99249077

00:55:25.644 --> 00:55:27.904 between edibles and smoking?  
NOTE Confidence: 0.98516876

00:55:28.444 --> 00:55:28.944 Like,  
NOTE Confidence: 0.943522

00:55:29.644 --> 00:55:31.184 did you even have enough,  
NOTE Confidence: 0.9996332

00:55:31.565 --> 00:55:32.385 data about  
NOTE Confidence: 0.8199692

00:55:32.890 --> 00:55:34.330 edible use? Yeah. So in  
NOTE Confidence: 0.8199692

00:55:34.330 --> 00:55:35.469 a b c d, no.  
NOTE Confidence: 0.9237299

00:55:35.930 --> 00:55:37.369 Just because it was all  
NOTE Confidence: 0.9237299

00:55:37.369 --> 00:55:38.810 retrospective report from ten years  
NOTE Confidence: 0.9237299

00:55:38.810 --> 00:55:39.310 ago.  
NOTE Confidence: 0.9606648

00:55:39.850 --> 00:55:41.210 These kids were recruited in  
NOTE Confidence: 0.9606648

00:55:41.210 --> 00:55:42.890 twenty sixteen. So I would

NOTE Confidence: 0.9606648  
00:55:42.890 --> 00:55:43.690 just like to keep in  
NOTE Confidence: 0.9606648  
00:55:43.690 --> 00:55:44.489 mind that it means they  
NOTE Confidence: 0.9606648  
00:55:44.489 --> 00:55:46.109 were being born around twenty,  
NOTE Confidence: 0.97965515  
00:55:46.875 --> 00:55:47.935 two thousand and six.  
NOTE Confidence: 0.940894  
00:55:48.635 --> 00:55:49.594 So I think there are  
NOTE Confidence: 0.940894  
00:55:49.594 --> 00:55:50.795 some things in that dataset  
NOTE Confidence: 0.940894  
00:55:50.795 --> 00:55:51.835 that would suggest there are  
NOTE Confidence: 0.940894  
00:55:51.835 --> 00:55:53.195 likely less edibles around at  
NOTE Confidence: 0.940894  
00:55:53.195 --> 00:55:54.094 that time period,  
NOTE Confidence: 0.8844219  
00:55:54.555 --> 00:55:55.995 for them relative to their  
NOTE Confidence: 0.8844219  
00:55:55.995 --> 00:55:56.975 ubiquity now.  
NOTE Confidence: 0.97641635  
00:55:57.435 --> 00:55:58.315 So I think that was  
NOTE Confidence: 0.97641635  
00:55:58.315 --> 00:55:59.670 probably more traditional use.  
NOTE Confidence: 0.93445116  
00:56:00.549 --> 00:56:01.829 But in our more our  
NOTE Confidence: 0.93445116  
00:56:01.829 --> 00:56:02.869 our studies we're doing here,  
NOTE Confidence: 0.93445116

00:56:02.869 --> 00:56:04.489 we're getting we're really intensely

NOTE Confidence: 0.93445116

00:56:04.549 --> 00:56:06.489 quantifying how they're using it.

NOTE Confidence: 0.93445116

00:56:06.549 --> 00:56:07.530 And most everybody

NOTE Confidence: 0.9655747

00:56:07.910 --> 00:56:09.190 it's I wanna say it's

NOTE Confidence: 0.9655747

00:56:09.190 --> 00:56:09.910 ninety five percent. I know

NOTE Confidence: 0.9655747

00:56:09.910 --> 00:56:10.950 it's greater than ninety. I

NOTE Confidence: 0.9655747

00:56:10.950 --> 00:56:12.069 wanna say it's ninety five

NOTE Confidence: 0.9655747

00:56:12.069 --> 00:56:13.785 percent now, though, are mostly

NOTE Confidence: 0.9655747

00:56:13.785 --> 00:56:15.305 smoking it with very little

NOTE Confidence: 0.9655747

00:56:15.305 --> 00:56:16.185 edible use. But, again, I

NOTE Confidence: 0.9655747

00:56:16.185 --> 00:56:17.145 think that's a a difference

NOTE Confidence: 0.9655747

00:56:17.145 --> 00:56:18.585 with our under resourced sample

NOTE Confidence: 0.9655747

00:56:18.585 --> 00:56:19.785 that is largely getting these,

NOTE Confidence: 0.9655747

00:56:20.025 --> 00:56:21.405 from the black market still.

NOTE Confidence: 0.9655747

00:56:21.704 --> 00:56:22.665 Yeah. But it makes sense

NOTE Confidence: 0.9655747

00:56:22.665 --> 00:56:23.625 if it was from two

NOTE Confidence: 0.9655747

00:56:23.625 --> 00:56:26.099 thousand and six. So Yeah.

NOTE Confidence: 0.9655747

00:56:26.239 --> 00:56:28.239 Yeah. Probably. So and another

NOTE Confidence: 0.9655747

00:56:28.239 --> 00:56:29.760 question is, did you have

NOTE Confidence: 0.9655747

00:56:29.760 --> 00:56:30.579 data about

NOTE Confidence: 0.888319

00:56:31.599 --> 00:56:34.000 postnatal exposure, about the passive

NOTE Confidence: 0.888319

00:56:34.000 --> 00:56:34.500 smoking?

NOTE Confidence: 0.9797979

00:56:35.280 --> 00:56:36.400 Yeah. This is a great,

NOTE Confidence: 0.9797979

00:56:36.400 --> 00:56:37.219 great question.

NOTE Confidence: 0.94288796

00:56:38.000 --> 00:56:39.200 We don't have a good

NOTE Confidence: 0.94288796

00:56:39.200 --> 00:56:40.260 data on that in ABCD.

NOTE Confidence: 0.90164787

00:56:41.055 --> 00:56:42.734 We are getting those data

NOTE Confidence: 0.90164787

00:56:42.734 --> 00:56:43.214 in,

NOTE Confidence: 0.9360369

00:56:43.535 --> 00:56:44.974 the CUDL dataset, so I'm

NOTE Confidence: 0.9360369

00:56:44.974 --> 00:56:46.015 really curious to look at

NOTE Confidence: 0.9360369

00:56:46.015 --> 00:56:47.135 that. And what I wish

NOTE Confidence: 0.9360369

00:56:47.135 --> 00:56:47.855 we could have gotten that  
NOTE Confidence: 0.9360369

00:56:47.855 --> 00:56:48.815 we weren't able to get  
NOTE Confidence: 0.9360369

00:56:48.815 --> 00:56:50.035 would be, breast milk.  
NOTE Confidence: 0.99215215

00:56:50.335 --> 00:56:51.375 I think that'd be very  
NOTE Confidence: 0.99215215

00:56:51.375 --> 00:56:53.010 interesting. In our sample, it  
NOTE Confidence: 0.99215215

00:56:53.090 --> 00:56:54.530 gets a little conflicting because  
NOTE Confidence: 0.99215215

00:56:54.530 --> 00:56:55.090 a lot of them are  
NOTE Confidence: 0.99215215

00:56:55.090 --> 00:56:55.830 not breastfeeding.  
NOTE Confidence: 0.96205944

00:56:56.370 --> 00:56:57.090 A lot of the our  
NOTE Confidence: 0.96205944

00:56:57.090 --> 00:56:58.610 individuals across both groups are  
NOTE Confidence: 0.96205944

00:56:58.610 --> 00:56:59.810 not breastfeeding. So a lot  
NOTE Confidence: 0.96205944

00:56:59.810 --> 00:57:01.010 of them are using formula.  
NOTE Confidence: 0.96205944

00:57:01.010 --> 00:57:02.290 So partly because of that,  
NOTE Confidence: 0.96205944

00:57:02.290 --> 00:57:03.330 we decided not to look  
NOTE Confidence: 0.96205944

00:57:03.330 --> 00:57:04.150 at that in our budgetary  
NOTE Confidence: 0.96205944

00:57:04.290 --> 00:57:05.510 restrictions. But I think,

NOTE Confidence: 0.96970785  
00:57:05.890 --> 00:57:06.550 you know,  
NOTE Confidence: 0.96234065  
00:57:06.924 --> 00:57:08.385 especially given the the fattiness  
NOTE Confidence: 0.96234065  
00:57:08.525 --> 00:57:09.885 of of of breast milk  
NOTE Confidence: 0.96234065  
00:57:09.885 --> 00:57:10.605 and stuff, I think the  
NOTE Confidence: 0.96234065  
00:57:10.605 --> 00:57:12.045 idea of cannabis consumers getting  
NOTE Confidence: 0.96234065  
00:57:12.045 --> 00:57:13.265 in there and binding and  
NOTE Confidence: 0.96234065  
00:57:13.325 --> 00:57:14.765 transmitting is is is quite  
NOTE Confidence: 0.96234065  
00:57:14.765 --> 00:57:16.305 quite, like, quite strong.  
NOTE Confidence: 0.94758236  
00:57:16.605 --> 00:57:17.325 And I I do wanna  
NOTE Confidence: 0.94758236  
00:57:17.325 --> 00:57:18.125 emphasize that, yeah, I think  
NOTE Confidence: 0.94758236  
00:57:18.125 --> 00:57:19.164 that's very important because even,  
NOTE Confidence: 0.94758236  
00:57:19.164 --> 00:57:20.800 like, as little as, like,  
NOTE Confidence: 0.94758236  
00:57:20.800 --> 00:57:22.000 five ish years ago, I  
NOTE Confidence: 0.94758236  
00:57:22.000 --> 00:57:22.800 wanna say, the,  
NOTE Confidence: 0.98832685  
00:57:23.359 --> 00:57:24.660 American College of  
NOTE Confidence: 0.9795683

00:57:25.359 --> 00:57:26.559 Obstetrics and the like was  
NOTE Confidence: 0.9795683

00:57:26.559 --> 00:57:27.940 actually saying they couldn't recommend  
NOTE Confidence: 0.9645028

00:57:28.319 --> 00:57:29.760 not using or using cannabis  
NOTE Confidence: 0.9645028

00:57:29.760 --> 00:57:31.119 during pregnancy or during breast  
NOTE Confidence: 0.9645028

00:57:31.119 --> 00:57:32.339 milk feeding, and they subsequently  
NOTE Confidence: 0.9645028

00:57:32.480 --> 00:57:33.785 reversed that saying that, you  
NOTE Confidence: 0.9645028

00:57:33.785 --> 00:57:34.745 know, there's not enough data,  
NOTE Confidence: 0.9645028

00:57:34.745 --> 00:57:35.625 but they would not recommend  
NOTE Confidence: 0.9645028

00:57:35.625 --> 00:57:36.425 it now. But they were  
NOTE Confidence: 0.9645028

00:57:36.425 --> 00:57:37.705 just saying they couldn't say  
NOTE Confidence: 0.9645028

00:57:37.705 --> 00:57:38.605 yes or no.  
NOTE Confidence: 0.97110003

00:57:39.065 --> 00:57:39.785 So I think, you know,  
NOTE Confidence: 0.97110003

00:57:39.785 --> 00:57:40.665 given some of these things  
NOTE Confidence: 0.97110003

00:57:40.665 --> 00:57:41.785 are I think we just  
NOTE Confidence: 0.97110003

00:57:41.785 --> 00:57:42.745 need a lot more research  
NOTE Confidence: 0.97110003

00:57:42.745 --> 00:57:44.045 in this this area, unfortunately,

NOTE Confidence: 0.9963202  
00:57:44.505 --> 00:57:45.465 before we can really make  
NOTE Confidence: 0.9963202  
00:57:45.465 --> 00:57:46.585 a lot of policy decisions.  
NOTE Confidence: 0.9963202  
00:57:46.585 --> 00:57:46.745 But  
NOTE Confidence: 0.99970806  
00:57:47.500 --> 00:57:48.960 Alright. Thank you very much.  
NOTE Confidence: 0.98474926  
00:57:50.060 --> 00:57:51.580 Oh, well, thank you. And,  
NOTE Confidence: 0.98474926  
00:57:51.820 --> 00:57:53.180 just for anybody, I'm happy  
NOTE Confidence: 0.98474926  
00:57:53.180 --> 00:57:53.980 to if you wanna get  
NOTE Confidence: 0.98474926  
00:57:53.980 --> 00:57:54.700 in touch by email or  
NOTE Confidence: 0.98474926  
00:57:54.700 --> 00:57:55.420 anything like that. I know  
NOTE Confidence: 0.98474926  
00:57:55.420 --> 00:57:56.220 we're about out of time  
NOTE Confidence: 0.98474926  
00:57:56.220 --> 00:57:57.020 now, but I'm I would  
NOTE Confidence: 0.98474926  
00:57:57.020 --> 00:57:58.140 be happy to to continue  
NOTE Confidence: 0.98474926  
00:57:58.140 --> 00:57:59.760 these conversations offline too.  
NOTE Confidence: 0.595933  
00:58:00.174 --> 00:58:00.674 Thanks  
NOTE Confidence: 0.91861886  
00:58:00.974 --> 00:58:01.474 for  
NOTE Confidence: 0.9428022

00:58:01.775 --> 00:58:03.495 a incredible presentation, and I'm

NOTE Confidence: 0.9428022

00:58:03.615 --> 00:58:04.654 I I will be getting

NOTE Confidence: 0.9428022

00:58:04.654 --> 00:58:05.694 in touch with you. I

NOTE Confidence: 0.9428022

00:58:05.694 --> 00:58:07.454 have some interesting ideas that

NOTE Confidence: 0.9428022

00:58:07.454 --> 00:58:08.575 we might wanna think about.

NOTE Confidence: 0.9428022

00:58:08.575 --> 00:58:09.615 Well, Cyril, I've been reading

NOTE Confidence: 0.9428022

00:58:09.615 --> 00:58:10.815 your work for decades, and

NOTE Confidence: 0.9428022

00:58:10.815 --> 00:58:11.535 I love your work. So

NOTE Confidence: 0.9428022

00:58:11.535 --> 00:58:12.414 I'd love to collaborate as

NOTE Confidence: 0.9428022

00:58:12.414 --> 00:58:14.115 I'm going to. Thank you.

NOTE Confidence: 0.9517797

00:58:14.702 --> 00:58:16.302 Alright. Thanks everyone for joining.

NOTE Confidence: 0.9517797

00:58:16.302 --> 00:58:17.682 We'll see you next month.