WEBVTT

NOTE duration:"00:55:18"

NOTE recognizability:0.836

NOTE language:en-us

NOTE Confidence: 0.860283819285714

00:00:00.000 --> 00:00:04.264 So I was able to look at associations

NOTE Confidence: 0.860283819285714

00:00:04.264 --> 00:00:08.198 between maternal stress and brain phenotypes.

NOTE Confidence: 0.860283819285714

00:00:08.200 --> 00:00:10.200 So this was very exciting,

NOTE Confidence: 0.860283819285714

00:00:10.200 --> 00:00:12.976 but the one thing I wasn't so happy

NOTE Confidence: 0.860283819285714

00:00:12.976 --> 00:00:15.641 about was that we looked at the

NOTE Confidence: 0.860283819285714

00:00:15.641 --> 00:00:17.920 children's brain at 7 years age.

NOTE Confidence: 0.860283819285714

00:00:17.920 --> 00:00:19.943 And of course there's a lot happening

NOTE Confidence: 0.860283819285714

00:00:19.943 --> 00:00:21.833 in the post Natal period and

NOTE Confidence: 0.860283819285714

00:00:21.833 --> 00:00:23.747 there's a lot of interaction and

NOTE Confidence: 0.860283819285714

00:00:23.747 --> 00:00:25.753 also continuity in terms of free

NOTE Confidence: 0.860283819285714

00:00:25.753 --> 00:00:27.636 Natal stress and post Natal stress.

NOTE Confidence: 0.860283819285714

00:00:27.636 --> 00:00:29.428 So we don't really know if we

NOTE Confidence: 0.860283819285714

00:00:29.428 --> 00:00:31.417 look at something at 7 years age,

NOTE Confidence: 0.860283819285714

00:00:31.420 --> 00:00:33.184 is it something that's really related

NOTE Confidence: 0.860283819285714

00:00:33.184 --> 00:00:35.137 to the prenatal environment or is it

NOTE Confidence: 0.860283819285714

00:00:35.137 --> 00:00:36.601 really the post Natal environment that

NOTE Confidence: 0.860283819285714

00:00:36.601 --> 00:00:38.339 shapes this or at least moderates this?

NOTE Confidence: 0.860283819285714

00:00:38.340 --> 00:00:40.458 So I thought.

NOTE Confidence: 0.860283819285714

00:00:40.460 --> 00:00:41.350 I actually.

NOTE Confidence: 0.8831331

00:00:42.640 --> 00:00:46.460 I have to confirm something here. Got

NOTE Confidence: 0.78462552

00:00:46.460 --> 00:00:48.660 it that it's recorded but I

NOTE Confidence: 0.78462552

00:00:48.660 --> 00:00:50.820 don't see my cursor. We still

NOTE Confidence: 0.77167287

00:00:50.830 --> 00:00:52.430 have somebody who can.

NOTE Confidence: 0.77167287

00:00:52.430 --> 00:00:53.538 Karen, can you help me?

NOTE Confidence: 0.818572104

00:00:55.190 --> 00:00:58.674 See it's. Oh, I see. See the

NOTE Confidence: 0.818572104

00:00:58.674 --> 00:00:59.909 cursor is there on mission.

NOTE Confidence: 0.90505508125

00:01:03.170 --> 00:01:06.668 There we go. OK. Thank you

NOTE Confidence: 0.90505508125

00:01:06.668 --> 00:01:10.000 so much. So I thought.

NOTE Confidence: 0.22548062

00:01:14.180 --> 00:01:14.810 Umm.

NOTE Confidence: 0.800229886666667

00:01:18.040 --> 00:01:20.928 Moving forward, no. No. OK.

NOTE Confidence: 0.800229886666667

00:01:20.928 --> 00:01:22.600 I just wanted to get you to talk.

NOTE Confidence: 0.868787269375

00:01:25.050 --> 00:01:27.606 Thank you. So I thought if we really wanted

NOTE Confidence: 0.868787269375

00:01:27.606 --> 00:01:30.310 to see what our prenatal influences were,

NOTE Confidence: 0.868787269375

00:01:30.310 --> 00:01:31.195 supposed Natal influences,

NOTE Confidence: 0.868787269375

00:01:31.195 --> 00:01:33.693 what we should do is try to characterize

NOTE Confidence: 0.868787269375

00:01:33.693 --> 00:01:35.578 the brain phenotypes shortly after

NOTE Confidence: 0.868787269375

00:01:35.578 --> 00:01:37.818 birth because at this time point

NOTE Confidence: 0.868787269375

00:01:37.818 --> 00:01:39.508 post Natal influences cannot yet

NOTE Confidence: 0.868787269375

00:01:39.508 --> 00:01:41.275 have exerted their influences.

NOTE Confidence: 0.868787269375

00:01:41.275 --> 00:01:44.610 So this is. This is what we set

NOTE Confidence: 0.868787269375

00:01:44.610 --> 00:01:45.710 up together with my colleagues.

NOTE Confidence: 0.868787269375

00:01:45.710 --> 00:01:47.747 Pathik, what ones on your entringer at

NOTE Confidence: 0.868787269375

00:01:47.747 --> 00:01:49.896 the University of California, Irvine.

NOTE Confidence: 0.868787269375

00:01:49.896 --> 00:01:53.126 We had this pregnancy cohort

NOTE Confidence: 0.868787269375

00:01:53.126 --> 00:01:57.030 that where we did extremely.

NOTE Confidence: 0.868787269375

00:01:57.030 --> 00:01:58.640 Deep phenotyping in terms of

NOTE Confidence: 0.868787269375

00:01:58.640 --> 00:02:00.250 their stress and stress biology,

NOTE Confidence: 0.868787269375

00:02:00.250 --> 00:02:04.050 applying ecological momentary or stress

NOTE Confidence: 0.868787269375

00:02:04.050 --> 00:02:06.852 momentary assessments of stress in their

NOTE Confidence: 0.868787269375

00:02:06.852 --> 00:02:09.608 home environment across four days in

NOTE Confidence: 0.868787269375

00:02:09.608 --> 00:02:12.084 their home environment and we took,

NOTE Confidence: 0.868787269375

00:02:12.084 --> 00:02:14.592 we collected a lot of biological

NOTE Confidence: 0.868787269375

00:02:14.592 --> 00:02:17.651 samples and then we followed up these

NOTE Confidence: 0.868787269375

00:02:17.651 --> 00:02:20.806 children and my specific focus was brain

NOTE Confidence: 0.868787269375

00:02:20.806 --> 00:02:24.086 development based on multimodal MRI

NOTE Confidence: 0.868787269375

00:02:24.086 --> 00:02:27.090 and also cognitive function whereas.

NOTE Confidence: 0.868787269375

00:02:27.090 --> 00:02:29.370 Uh, my colleague Sonia entering ahead

NOTE Confidence: 0.868787269375

00:02:29.370 --> 00:02:32.098 more focus on body composition and um,

NOTE Confidence: 0.868787269375

00:02:32.100 --> 00:02:32.826 cellular aging.

NOTE Confidence: 0.868787269375

00:02:32.826 --> 00:02:35.730 So this is like a pretty well characterized

NOTE Confidence: 0.868787269375

00:02:35.795 --> 00:02:38.119 cohort and I will be mainly talking

NOTE Confidence: 0.868787269375

00:02:38.119 --> 00:02:40.289 about results from this cohort today.

NOTE Confidence: 0.868787269375

00:02:40.290 --> 00:02:44.136 Umm, where we have roughly, yeah,

NOTE Confidence: 0.868787269375

00:02:44.136 --> 00:02:46.116 between, depending on the outcome,

NOTE Confidence: 0.868787269375

00:02:46.120 --> 00:02:48.348 100 and 114 Mother,

NOTE Confidence: 0.868787269375

00:02:48.348 --> 00:02:50.576 14 Mother child diets.

NOTE Confidence: 0.868787269375

00:02:50.580 --> 00:02:54.220 We do have several other cohorts now.

NOTE Confidence: 0.868787269375

00:02:54.220 --> 00:02:57.325 We are part of the ECHO consortium here in

NOTE Confidence: 0.868787269375

00:02:57.325 --> 00:03:00.517 the US and contributed 2 cohorts to that.

NOTE Confidence: 0.868787269375

00:03:00.520 --> 00:03:02.942 And we also have a pregnancy cohort

NOTE Confidence: 0.868787269375

00:03:02.942 --> 00:03:03.634 in Berlin.

NOTE Confidence: 0.868787269375

00:03:03.640 --> 00:03:06.020 And we are trying to harmonize our

NOTE Confidence: 0.868787269375

00:03:06.020 --> 00:03:08.653 data collection in ways that we can

NOTE Confidence: 0.868787269375

00:03:08.653 --> 00:03:10.193 eventually merge these cohorts.

NOTE Confidence: 0.868787269375

00:03:10.200 --> 00:03:13.007 For either for mega analysis or at

NOTE Confidence: 0.868787269375

00:03:13.007 --> 00:03:15.068 least for replication purposes and

NOTE Confidence: 0.868787269375

00:03:15.068 --> 00:03:17.819 this is something that we will be

NOTE Confidence: 0.868787269375

00:03:17.819 --> 00:03:20.257 focusing on to really address the

NOTE Confidence: 0.868787269375

00:03:20.257 --> 00:03:23.522 replication crisis and and see where we

NOTE Confidence: 0.868787269375

00:03:23.522 --> 00:03:28.044 stand with some of these initial findings.

NOTE Confidence: 0.868787269375

00:03:28.050 --> 00:03:30.468 So when I started this work,

NOTE Confidence: 0.868787269375

00:03:30.470 --> 00:03:33.088 there was quite a bit of evidence

NOTE Confidence: 0.868787269375

00:03:33.088 --> 00:03:34.577 from epidemiological studies showing

NOTE Confidence: 0.868787269375

00:03:34.577 --> 00:03:36.779 that there was an association between

NOTE Confidence: 0.868787269375

00:03:36.779 --> 00:03:38.856 maternal stress during pregnancy and

NOTE Confidence: 0.868787269375

00:03:38.856 --> 00:03:40.692 higher risk for neurodevelopmental

NOTE Confidence: 0.868787269375

00:03:40.692 --> 00:03:42.528 disorders and psychiatric disorders,

NOTE Confidence: 0.868787269375

00:03:42.530 --> 00:03:44.820 as well as cognitive impairment.

NOTE Confidence: 0.868787269375

00:03:44.820 --> 00:03:47.711 But anything we knew about really changes

NOTE Confidence: 0.868787269375

00:03:47.711 --> 00:03:51.097 in the brain was based on animal models.

NOTE Confidence: 0.868787269375

00:03:51.100 --> 00:03:52.580 So as Kieran said earlier,

NOTE Confidence: 0.868787269375

00:03:52.580 --> 00:03:55.568 we did publish the first study.

NOTE Confidence: 0.868787269375

00:03:55.570 --> 00:03:57.806 Now 13 years ago,

NOTE Confidence: 0.868787269375

00:03:57.806 --> 00:04:00.042 showing associations between maternal

NOTE Confidence: 0.868787269375

00:04:00.042 --> 00:04:02.148 pregnancy specific anxiety and

NOTE Confidence: 0.868787269375

00:04:02.148 --> 00:04:04.413 reductions in Gray matter volume

NOTE Confidence: 0.868787269375

00:04:04.413 --> 00:04:06.988 in the children at 7 years age.

NOTE Confidence: 0.868787269375

00:04:06.990 --> 00:04:08.808 And as you can see here,

NOTE Confidence: 0.868787269375

00:04:08.810 --> 00:04:10.770 especially these pronounced reductions in

NOTE Confidence: 0.868787269375

00:04:10.770 --> 00:04:13.849 Gray matter volume in the prefrontal cortex,

NOTE Confidence: 0.868787269375

00:04:13.850 --> 00:04:18.224 but here also in the in the temporal cortex.

NOTE Confidence: 0.868787269375

00:04:18.230 --> 00:04:20.006 And this is interesting because these

NOTE Confidence: 0.868787269375

00:04:20.006 --> 00:04:22.155 are brain regions that support some of

NOTE Confidence: 0.868787269375

00:04:22.155 --> 00:04:23.680 these cognitive functions that have

NOTE Confidence: 0.868787269375

00:04:23.680 --> 00:04:25.680 been shown in epidemiological studies.

NOTE Confidence: 0.868787269375

00:04:25.680 --> 00:04:28.446 To be associated with maternal stress.

NOTE Confidence: 0.868787269375

00:04:28.450 --> 00:04:31.747 We then later when the sample was.

NOTE Confidence: 0.868787269375

00:04:31.750 --> 00:04:34.006 Larger also looked at cortical thickness

NOTE Confidence: 0.868787269375

00:04:34.006 --> 00:04:36.350 and whether there were associations,

NOTE Confidence: 0.868787269375

00:04:36.350 --> 00:04:37.886 associations between maternal

NOTE Confidence: 0.868787269375

00:04:37.886 --> 00:04:39.934 depressive symptoms during pregnancy

NOTE Confidence: 0.868787269375

00:04:39.934 --> 00:04:41.470 and cortical thickness.

NOTE Confidence: 0.868787269375

00:04:41.470 --> 00:04:43.758 And as you can see in blue are

NOTE Confidence: 0.868787269375

00:04:43.758 --> 00:04:45.720 several regions in the brain where

NOTE Confidence: 0.868787269375

00:04:45.720 --> 00:04:47.700 the cortex was thinner in children

NOTE Confidence: 0.868787269375

00:04:47.765 --> 00:04:50.180 whose mothers had higher depressive

NOTE Confidence: 0.868787269375

00:04:50.180 --> 00:04:51.629 symptoms during pregnancy.

NOTE Confidence: 0.868787269375

00:04:51.630 --> 00:04:52.042 Again,

NOTE Confidence: 0.868787269375

00:04:52.042 --> 00:04:53.690 very pronounced are the

NOTE Confidence: 0.868787269375

00:04:53.690 --> 00:04:55.750 reductions here in the prefrontal

NOTE Confidence: 0.841730364545455

00:04:55.819 --> 00:04:58.550 cortex, and this is also

NOTE Confidence: 0.841730364545455

00:04:58.550 --> 00:05:00.510 what mediated an association,

NOTE Confidence: 0.841730364545455

00:05:00.510 --> 00:05:01.740 the association between.

NOTE Confidence: 0.841730364545455

00:05:01.740 --> 00:05:04.272 Maternal depressive symptoms and

NOTE Confidence: 0.841730364545455

00:05:04.272 --> 00:05:07.437 externalizing problems in her children.

NOTE Confidence: 0.841730364545455

00:05:07.440 --> 00:05:10.086 So this is something we have also

NOTE Confidence: 0.841730364545455

00:05:10.086 --> 00:05:12.460 started looking at in our newborns.

NOTE Confidence: 0.841730364545455

00:05:12.460 --> 00:05:14.378 In this other cohort, I told about,

NOTE Confidence: 0.841730364545455

00:05:14.380 --> 00:05:16.452 I talked about and here's one example

NOTE Confidence: 0.841730364545455

00:05:16.452 --> 00:05:18.699 where we were able to show that

NOTE Confidence: 0.841730364545455

00:05:18.699 --> 00:05:20.324 there is an association between

NOTE Confidence: 0.841730364545455

00:05:20.324 --> 00:05:21.857 higher perceived stress levels

NOTE Confidence: 0.841730364545455

00:05:21.857 --> 00:05:23.772 in the mother during pregnancy

NOTE Confidence: 0.841730364545455

00:05:23.772 --> 00:05:25.240 and smaller hippocampal volumes.

NOTE Confidence: 0.841730364545455

00:05:25.240 --> 00:05:27.690 And we of course also interested in

NOTE Confidence: 0.841730364545455

00:05:27.690 --> 00:05:30.107 whether this has done any kind of

NOTE Confidence: 0.841730364545455

00:05:30.107 --> 00:05:31.443 implications for cognitive function

NOTE Confidence: 0.841730364545455

00:05:31.501 --> 00:05:33.197 cognitive development later on.

NOTE Confidence: 0.841730364545455

00:05:33.200 --> 00:05:34.024 And interestingly,

NOTE Confidence: 0.841730364545455

00:05:34.024 --> 00:05:36.496 we didn't see a main effect

NOTE Confidence: 0.841730364545455

00:05:36.496 --> 00:05:37.860 of hippocampal volume.

NOTE Confidence: 0.841730364545455

00:05:37.860 --> 00:05:39.100 The birth and cognitive function

NOTE Confidence: 0.841730364545455

00:05:39.100 --> 00:05:41.098 here in this case at six months age,

NOTE Confidence: 0.841730364545455

00:05:41.100 --> 00:05:43.242 but it was an interaction with the

NOTE Confidence: 0.841730364545455

00:05:43.242 --> 00:05:44.885 environment and those children who

NOTE Confidence: 0.841730364545455

00:05:44.885 --> 00:05:46.550 had a larger hippocampal volume

NOTE Confidence: 0.841730364545455

00:05:46.550 --> 00:05:48.703 were better able to benefit from

NOTE Confidence: 0.841730364545455

00:05:48.703 --> 00:05:49.795 an enriched environment.

NOTE Confidence: 0.841730364545455

00:05:49.800 --> 00:05:52.422 So it really shows this concept

NOTE Confidence: 0.841730364545455

00:05:52.422 --> 00:05:53.733 of conditional probability.

NOTE Confidence: 0.841730364545455

00:05:53.740 --> 00:05:56.215 So certain phenotypes get established

NOTE Confidence: 0.841730364545455

00:05:56.215 --> 00:05:59.304 by certain experiences and then will

NOTE Confidence: 0.841730364545455

00:05:59.304 --> 00:06:01.472 determine how future experiences

NOTE Confidence: 0.841730364545455

00:06:01.472 --> 00:06:03.640 can shape further development,

NOTE Confidence: 0.841730364545455

00:06:03.640 --> 00:06:06.671 which I think is this is a

NOTE Confidence: 0.841730364545455

00:06:06.671 --> 00:06:08.590 nice example of that.

NOTE Confidence: 0.841730364545455

00:06:08.590 --> 00:06:11.894 And then this is some work I'm I'm

NOTE Confidence: 0.841730364545455

00:06:11.894 --> 00:06:14.748 working on with Kieran currently

NOTE Confidence: 0.841730364545455

00:06:14.750 --> 00:06:18.929 the the UCI children we have done

NOTE Confidence: 0.841730364545455

00:06:18.929 --> 00:06:21.830 gene DNA methylation analysis,

NOTE Confidence: 0.841730364545455

00:06:21.830 --> 00:06:23.818 longitudinal DNA methylation analysis

NOTE Confidence: 0.841730364545455

00:06:23.818 --> 00:06:26.800 that we are currently analyzing and

NOTE Confidence: 0.841730364545455

00:06:26.877 --> 00:06:28.887 something we have started looking

NOTE Confidence: 0.841730364545455

00:06:28.887 --> 00:06:31.469 into is we have generated this

NOTE Confidence: 0.841730364545455

00:06:31.469 --> 00:06:34.774 wholly epigenetic risk score that is

NOTE Confidence: 0.841730364545455

00:06:34.774 --> 00:06:38.230 supposedly based on this paper indicates.

NOTE Confidence: 0.841730364545455

00:06:38.230 --> 00:06:41.194 Exposure to glucocorticoids during

NOTE Confidence: 0.841730364545455

00:06:41.194 --> 00:06:44.608 fetal development and what we did,

NOTE Confidence: 0.841730364545455

00:06:44.608 --> 00:06:47.018 we created this polygenetic risk

NOTE Confidence: 0.841730364545455

00:06:47.018 --> 00:06:49.112 score and actually showed that

NOTE Confidence: 0.841730364545455

00:06:49.112 --> 00:06:51.127 it was associated with maternal

NOTE Confidence: 0.841730364545455

00:06:51.127 --> 00:06:52.842 depressive symptoms during pregnancy

NOTE Confidence: 0.841730364545455

00:06:52.842 --> 00:06:55.332 and also that it then predicted

NOTE Confidence: 0.841730364545455

00:06:55.332 --> 00:06:57.138 hippocampal volume in the newborn.

NOTE Confidence: 0.841730364545455

00:06:57.140 --> 00:06:59.366 So this is just an initial attempt

NOTE Confidence: 0.841730364545455

00:06:59.366 --> 00:07:01.868 to try to understand potential some

NOTE Confidence: 0.841730364545455

00:07:01.868 --> 00:07:04.323 of the epigenetic underpinnings of

NOTE Confidence: 0.841730364545455

00:07:04.323 --> 00:07:07.409 some of the associations we observe.

NOTE Confidence: 0.841730364545455

00:07:07.410 --> 00:07:09.660 Umm.

NOTE Confidence: 0.841730364545455

00:07:09.660 --> 00:07:11.667 I told you that when I started this work,

NOTE Confidence: 0.841730364545455

00:07:11.670 --> 00:07:12.057 Umm,

NOTE Confidence: 0.841730364545455

00:07:12.057 --> 00:07:15.540 we were the first who who published on this.

NOTE Confidence: 0.841730364545455

00:07:15.540 --> 00:07:17.925 But this has changed dramatically

NOTE Confidence: 0.841730364545455

00:07:17.925 --> 00:07:19.833 in the last decade.

NOTE Confidence: 0.841730364545455

00:07:19.840 --> 00:07:22.496 There are a lot of studies now in

NOTE Confidence: 0.841730364545455

00:07:22.496 --> 00:07:24.352 humans showing associations between

NOTE Confidence: 0.841730364545455

00:07:24.352 --> 00:07:27.157 various types of maternal distrust

NOTE Confidence: 0.841730364545455

00:07:27.157 --> 00:07:29.046 during pregnancy, depression,

NOTE Confidence: 0.841730364545455

00:07:29.046 --> 00:07:29.812 anxiety,

NOTE Confidence: 0.841730364545455

00:07:29.812 --> 00:07:34.408 but also perceived stress levels and.

NOTE Confidence: 0.841730364545455

00:07:34.410 --> 00:07:34.637 Sorry,

NOTE Confidence: 0.841730364545455

00:07:34.637 --> 00:07:35.318 it's too loud.

NOTE Confidence: 0.777508889

00:07:38.250 --> 00:07:40.290 The various forms of maternal

NOTE Confidence: 0.777508889

00:07:40.290 --> 00:07:42.330 distress levels and brain outcomes,

NOTE Confidence: 0.777508889

00:07:42.330 --> 00:07:44.199 and this has been work has been

NOTE Confidence: 0.777508889

00:07:44.199 --> 00:07:46.409 done in in fetuses and newborns,

NOTE Confidence: 0.777508889

00:07:46.410 --> 00:07:47.778 infants, children and also

NOTE Confidence: 0.777508889

00:07:47.778 --> 00:07:49.146 adolescents and young adults.

NOTE Confidence: 0.777508889

00:07:49.150 --> 00:07:51.730 And so there is accumulating

NOTE Confidence: 0.777508889

00:07:51.730 --> 00:07:54.310 evidence for this for sure.

NOTE Confidence: 0.777508889

00:07:54.310 --> 00:07:56.422 But the picture is very heterogeneous

NOTE Confidence: 0.777508889

00:07:56.422 --> 00:07:57.830 because people are suffering

NOTE Confidence: 0.777508889

00:07:57.883 --> 00:07:59.267 different types of stress,

NOTE Confidence: 0.777508889

00:07:59.270 --> 00:08:00.485 different brain outcomes.

NOTE Confidence: 0.777508889

00:08:00.485 --> 00:08:02.510 They are using different pipelines

NOTE Confidence: 0.777508889

00:08:02.510 --> 00:08:04.089 for analyzing the MRI data.

NOTE Confidence: 0.777508889

00:08:04.090 --> 00:08:06.806 So I think we don't have a.

NOTE Confidence: 0.777508889

00:08:06.810 --> 00:08:08.652 Very good picture in terms of

NOTE Confidence: 0.777508889

00:08:08.652 --> 00:08:10.406 what replicates and what is like

NOTE Confidence: 0.777508889

00:08:10.406 --> 00:08:12.270 a true effects and I think we are

NOTE Confidence: 0.777508889

00:08:12.331 --> 00:08:14.277 getting there and and and I will

NOTE Confidence: 0.777508889

00:08:14.277 --> 00:08:16.016 be talking about some of the steps

NOTE Confidence: 0.777508889

00:08:16.016 --> 00:08:18.159 that we need to take but at least I

NOTE Confidence: 0.777508889

00:08:18.159 --> 00:08:19.881 think what we what we can establish

NOTE Confidence: 0.777508889

00:08:19.936 --> 00:08:21.646 that there is from different

NOTE Confidence: 0.777508889

00:08:21.646 --> 00:08:23.356 independent research groups quite a

NOTE Confidence: 0.777508889

00:08:23.360 --> 00:08:26.222 bit of evidence for an association

NOTE Confidence: 0.777508889

00:08:26.222 --> 00:08:28.130 between maternal distress during

NOTE Confidence: 0.777508889

00:08:28.205 --> 00:08:30.770 pregnancy and brain development and.

NOTE Confidence: 0.777508889

00:08:30.770 --> 00:08:32.708 We are of course very interested

NOTE Confidence: 0.777508889

00:08:32.708 --> 00:08:35.173 in what is it that the fetus

NOTE Confidence: 0.777508889

00:08:35.173 --> 00:08:37.363 actually receives in terms of the

NOTE Confidence: 0.777508889

00:08:37.363 --> 00:08:39.190 the signal of maternal stress.

NOTE Confidence: 0.777508889

00:08:39.190 --> 00:08:41.800 Because I often get asked what kind of

NOTE Confidence: 0.777508889

00:08:41.800 --> 00:08:43.984 stress should we be paying attention to.

NOTE Confidence: 0.777508889

00:08:43.990 --> 00:08:46.293 And I think any kind of stress

NOTE Confidence: 0.777508889

00:08:46.293 --> 00:08:48.552 we should be paying attention to

NOTE Confidence: 0.777508889

00:08:48.552 --> 00:08:51.338 because we don't know what in an

NOTE Confidence: 0.777508889

00:08:51.414 --> 00:08:54.049 individual actually leads to the

NOTE Confidence: 0.777508889

00:08:54.049 --> 00:08:56.554 translation into a biological signal.

NOTE Confidence: 0.777508889

00:08:56.554 --> 00:08:58.918 So there might be coping strategies.

NOTE Confidence: 0.777508889

00:08:58.920 --> 00:09:00.720 There might be like, like.

NOTE Confidence: 0.777508889

00:09:00.720 --> 00:09:02.300 Certain other resilience factors

NOTE Confidence: 0.777508889

00:09:02.300 --> 00:09:05.150 that lead to the mother coping with

NOTE Confidence: 0.777508889

00:09:05.150 --> 00:09:07.598 stress well and not increasing like

NOTE Confidence: 0.777508889

00:09:07.598 --> 00:09:09.580 different stress biology components,

NOTE Confidence: 0.777508889

00:09:09.580 --> 00:09:12.188 but others where this might be the case.

NOTE Confidence: 0.777508889

00:09:12.190 --> 00:09:14.218 And here are some mechanisms that

NOTE Confidence: 0.777508889

00:09:14.218 --> 00:09:16.499 we think are really important and of

NOTE Confidence: 0.777508889

00:09:16.499 --> 00:09:19.150 course on the one hand it is cortisol.

NOTE Confidence: 0.777508889

00:09:19.150 --> 00:09:20.900 We know that maternal cortisol

NOTE Confidence: 0.777508889

00:09:20.900 --> 00:09:22.650 can pass through the placenta.

NOTE Confidence: 0.777508889

00:09:22.650 --> 00:09:25.330 There is an enzyme 11 beta HSD two

NOTE Confidence: 0.777508889

00:09:25.330 --> 00:09:27.480 that converts active cortisol into

NOTE Confidence: 0.777508889

00:09:27.480 --> 00:09:29.352 inactive cortisone and protects

NOTE Confidence: 0.777508889

00:09:29.352 --> 00:09:31.949 the fetus from an overexposure.

NOTE Confidence: 0.777508889

00:09:31.950 --> 00:09:33.654 It's just a partial barrier and

NOTE Confidence: 0.777508889

00:09:33.654 --> 00:09:35.262 a certain percentage of cortisol

NOTE Confidence: 0.777508889

00:09:35.262 --> 00:09:36.090 passes through.

NOTE Confidence: 0.777508889

00:09:36.090 --> 00:09:37.640 And something that Kieran has

NOTE Confidence: 0.777508889

00:09:37.640 --> 00:09:39.512 actually shown and has very early

NOTE Confidence: 0.777508889

00:09:39.512 --> 00:09:41.374 work is that this enzyme seems to

NOTE Confidence: 0.777508889

00:09:41.374 --> 00:09:42.510 be stress sensitive.

NOTE Confidence: 0.777508889

00:09:42.510 --> 00:09:44.757 So not only is there more cortisol

NOTE Confidence: 0.777508889

00:09:44.757 --> 00:09:46.559 when the mother is stressed,

NOTE Confidence: 0.777508889

00:09:46.560 --> 00:09:48.340 but potentially more of this

NOTE Confidence: 0.777508889

00:09:48.340 --> 00:09:49.408 higher levels can.

NOTE Confidence: 0.777508889

00:09:49.410 --> 00:09:51.684 Pass through and this will lead

NOTE Confidence: 0.777508889

00:09:51.684 --> 00:09:54.866 to an increase in cortisol in the

NOTE Confidence: 0.777508889

00:09:54.866 --> 00:09:55.920 fetal compartment.

NOTE Confidence: 0.777508889

00:09:55.920 --> 00:09:59.676 And then also there's placenta CRH.

NOTE Confidence: 0.777508889

00:09:59.680 --> 00:10:02.290 Placenta CRH is identical to the

NOTE Confidence: 0.777508889

00:10:02.290 --> 00:10:05.120 peptide produced by the hypothalamus,

NOTE Confidence: 0.777508889

00:10:05.120 --> 00:10:07.136 but there is one very important difference,

NOTE Confidence: 0.777508889

00:10:07.140 --> 00:10:09.090 and that is that it underlies

NOTE Confidence: 0.777508889

00:10:09.090 --> 00:10:10.390 a positive feedback loop.

NOTE Confidence: 0.777508889

00:10:10.390 --> 00:10:12.120 So when cortisol is high,

NOTE Confidence: 0.777508889

00:10:12.120 --> 00:10:14.165 it produces CRH production in

NOTE Confidence: 0.777508889

00:10:14.165 --> 00:10:16.210 the placenta and will further

NOTE Confidence: 0.777508889

00:10:16.288 --> 00:10:18.578 stimulate the maternal HP access,

NOTE Confidence: 0.777508889

00:10:18.580 --> 00:10:20.337 but also the fetal HP a access.

NOTE Confidence: 0.777508889

00:10:20.340 --> 00:10:22.005 So under levels of under

NOTE Confidence: 0.777508889

00:10:22.005 --> 00:10:23.337 conditions of chronic stress,

NOTE Confidence: 0.777508889

00:10:23.340 --> 00:10:26.175 this can lead to this feed forward.

NOTE Confidence: 0.777508889

00:10:26.180 --> 00:10:29.330 Cycle of elevated cortisol concentrations.

NOTE Confidence: 0.777508889

00:10:29.330 --> 00:10:31.838 We are also really interested in

NOTE Confidence: 0.777508889

00:10:31.840 --> 00:10:34.304 cytokines and inflammatory markers,

NOTE Confidence: 0.777508889

00:10:34.304 --> 00:10:39.501 not only because of the like very good

NOTE Confidence: 0.777508889

00:10:39.501 --> 00:10:43.006 evidence for infections during pregnancy,

NOTE Confidence: 0.777508889

00:10:43.010 --> 00:10:44.638 increasing risk for psychopathology

NOTE Confidence: 0.777508889

00:10:44.638 --> 00:10:47.993 and we have been of course now worried

NOTE Confidence: 0.777508889

00:10:47.993 --> 00:10:50.507 during the pandemic also what COVID-19,

NOTE Confidence: 0.805438105

00:10:50.510 --> 00:10:52.786 how COVID-19 infections during

NOTE Confidence: 0.805438105

00:10:52.786 --> 00:10:56.200 pregnancy might do to the fetal.

NOTE Confidence: 0.805438105

00:10:56.200 --> 00:10:59.012 Features and feature development,

NOTE Confidence: 0.805438105

00:10:59.012 --> 00:11:01.788 but these these these immune

NOTE Confidence: 0.805438105

00:11:01.788 --> 00:11:04.068 mediators are also stress sensitive.

NOTE Confidence: 0.805438105

00:11:04.070 --> 00:11:05.246 And This is why we are

NOTE Confidence: 0.805438105

00:11:05.246 --> 00:11:06.030 very interested in them.

NOTE Confidence: 0.805438105

00:11:06.030 --> 00:11:07.926 And there are some debate whether

NOTE Confidence: 0.805438105

00:11:07.926 --> 00:11:09.989 they can actually pass the placenta.

NOTE Confidence: 0.805438105

00:11:09.990 --> 00:11:11.950 I don't think the evidence

NOTE Confidence: 0.805438105

00:11:11.950 --> 00:11:13.126 is very convincing.

NOTE Confidence: 0.805438105

00:11:13.130 --> 00:11:15.710 But what definitely happens

NOTE Confidence: 0.805438105

00:11:15.710 --> 00:11:18.290 is that there's systemic,

NOTE Confidence: 0.805438105

00:11:18.290 --> 00:11:20.310 systemic inflammation in the mother.

NOTE Confidence: 0.805438105

00:11:20.310 --> 00:11:22.374 It will lead to inflammation in the placenta,

NOTE Confidence: 0.805438105

00:11:22.380 --> 00:11:25.542 and the placenta itself will produce

NOTE Confidence: 0.805438105

00:11:25.542 --> 00:11:29.121 cytokines into the fetal compartment and

NOTE Confidence: 0.805438105

00:11:29.121 --> 00:11:32.576 inflammatory mediators will be elevated.

NOTE Confidence: 0.805438105

00:11:32.580 --> 00:11:34.106 This is what I will be talking

NOTE Confidence: 0.805438105

00:11:34.106 --> 00:11:35.419 about on the next slides,

NOTE Confidence: 0.805438105

00:11:35.420 --> 00:11:37.335 variation of maternal cortisol and

NOTE Confidence: 0.805438105

00:11:37.335 --> 00:11:39.250 interleukin 6 concentrations and how

NOTE Confidence: 0.805438105

00:11:39.309 --> 00:11:41.199 it affects fetal brain development.

NOTE Confidence: 0.805438105

00:11:41.200 --> 00:11:44.616 But we've also done work on metabolic

NOTE Confidence: 0.805438105

00:11:44.616 --> 00:11:47.240 factors like free fatty acids.

NOTE Confidence: 0.805438105

00:11:47.240 --> 00:11:48.716 We have characterized insulin

NOTE Confidence: 0.805438105

00:11:48.716 --> 00:11:50.930 and glucose and we have looked

NOTE Confidence: 0.805438105

00:11:50.996 --> 00:11:52.751 at conditions like maternal pre

NOTE Confidence: 0.805438105

00:11:52.751 --> 00:11:55.293 pregnancy BMI and we also see that

NOTE Confidence: 0.805438105

00:11:55.293 --> 00:11:57.471 this has the capability of programming

NOTE Confidence: 0.805438105

00:11:57.471 --> 00:11:59.310 fetal brain development and there

NOTE Confidence: 0.805438105

00:11:59.310 --> 00:12:01.160 we have focused specifically on

NOTE Confidence: 0.805438105

00:12:01.160 --> 00:12:03.010 brain regions that are important.

NOTE Confidence: 0.805438105

00:12:03.010 --> 00:12:05.430 Our energy homeostasis and see

NOTE Confidence: 0.805438105

00:12:05.430 --> 00:12:07.366 associations for example between

NOTE Confidence: 0.805438105

00:12:07.366 --> 00:12:09.671 maternal pre pregnancy BMI and

NOTE Confidence: 0.805438105

00:12:09.671 --> 00:12:11.856 elevated free fatty acid concentrations

NOTE Confidence: 0.805438105

00:12:11.856 --> 00:12:14.120 and hypothalamic development and

NOTE Confidence: 0.805438105

00:12:14.120 --> 00:12:16.460 hypothalamic integrity that then

NOTE Confidence: 0.805438105

00:12:16.460 --> 00:12:18.861 predicts body composition and

NOTE Confidence: 0.805438105

00:12:18.861 --> 00:12:22.066 fat gain in the infant.

NOTE Confidence: 0.805438105

00:12:22.070 --> 00:12:24.452 So this is just another summary

NOTE Confidence: 0.805438105

00:12:24.452 --> 00:12:26.330 how we're thinking about it,

NOTE Confidence: 0.805438105

00:12:26.330 --> 00:12:29.690 that various conditions during

NOTE Confidence: 0.805438105

00:12:29.690 --> 00:12:33.100 early life in the mother when she

NOTE Confidence: 0.805438105

00:12:33.100 --> 00:12:35.377 is pregnant or even before she

NOTE Confidence: 0.805438105

00:12:35.377 --> 00:12:37.742 was pregnant can affect maternal

NOTE Confidence: 0.805438105

00:12:37.742 --> 00:12:40.232 placental fetal stress biology and

NOTE Confidence: 0.805438105

00:12:40.232 --> 00:12:43.192 thereby affect all the fundamental

NOTE Confidence: 0.805438105

00:12:43.192 --> 00:12:45.560 processes of brain development.

NOTE Confidence: 0.805438105

00:12:45.560 --> 00:12:46.384 And um,

NOTE Confidence: 0.805438105

00:12:46.384 --> 00:12:48.032 then affect cognitive and

NOTE Confidence: 0.805438105

00:12:48.032 --> 00:12:49.680 affective processes as well,

NOTE Confidence: 0.805438105

00:12:49.680 --> 00:12:53.370 as well as mental health outcomes.

NOTE Confidence: 0.805438105

00:12:53.370 --> 00:12:54.108 So Umm,

NOTE Confidence: 0.805438105

00:12:54.108 --> 00:12:56.322 I want to share some findings

NOTE Confidence: 0.805438105

00:12:56.322 --> 00:12:59.581 with you on the variation in

NOTE Confidence: 0.805438105

00:12:59.581 --> 00:13:01.405 maternal cortisol concentrations.

NOTE Confidence: 0.805438105

00:13:01.410 --> 00:13:03.315 And here in Michelle volume

NOTE Confidence: 0.805438105

00:13:03.315 --> 00:13:04.839 and seven-year old children,

NOTE Confidence: 0.805438105

00:13:04.840 --> 00:13:07.542 this was the first cohort again that

NOTE Confidence: 0.805438105

00:13:07.542 --> 00:13:10.236 I've referred to and what we saw was.

NOTE Confidence: 0.805438105

00:13:10.240 --> 00:13:10.496 Sorry,

NOTE Confidence: 0.805438105

00:13:10.496 --> 00:13:12.544 I don't know if you can see my

NOTE Confidence: 0.805438105

00:13:12.544 --> 00:13:14.510 cursor doesn't work very well that

NOTE Confidence: 0.805438105

00:13:14.510 --> 00:13:16.360 higher levels of maternal cortisol

NOTE Confidence: 0.805438105

00:13:16.360 --> 00:13:17.470 concentrations during pregnancy

NOTE Confidence: 0.805438105

00:13:17.470 --> 00:13:19.037 were associated with larger McKellar

NOTE Confidence: 0.805438105

00:13:19.037 --> 00:13:21.589 volumes and there was a sex specific effect.

NOTE Confidence: 0.805438105

00:13:21.590 --> 00:13:24.260 We only saw those in girls and not in boys.

NOTE Confidence: 0.805438105

00:13:24.260 --> 00:13:26.670 And these larger amygdala volumes

NOTE Confidence: 0.805438105

00:13:26.670 --> 00:13:29.080 also mediated and association between

NOTE Confidence: 0.805438105

00:13:29.080 --> 00:13:31.230 maternal cortisol and effective symptoms.

NOTE Confidence: 0.805438105

00:13:31.230 --> 00:13:34.100 And these seven-year old girls,

NOTE Confidence: 0.805438105

00:13:34.100 --> 00:13:35.498 when we looked at the newborns,

NOTE Confidence: 0.805438105

00:13:35.500 --> 00:13:37.705 there was a tendency for exactly the

NOTE Confidence: 0.805438105

00:13:37.705 --> 00:13:40.198 same effect on larger amygdala volumes.

NOTE Confidence: 0.805438105

00:13:40.200 --> 00:13:41.586 Only young girls, but not in boys.

NOTE Confidence: 0.805438105

00:13:41.590 --> 00:13:43.530 It was not quite significant,

NOTE Confidence: 0.805438105

00:13:43.530 --> 00:13:43.932 but.

NOTE Confidence: 0.805438105

00:13:43.932 --> 00:13:47.148 And what we did find was that elevated

NOTE Confidence: 0.805438105

00:13:47.148 --> 00:13:49.396 maternal cortisol was associated

NOTE Confidence: 0.805438105

00:13:49.396 --> 00:13:51.748 with stronger amygdala connectivity

NOTE Confidence: 0.805438105

00:13:51.748 --> 00:13:54.804 to brain regions involved in

NOTE Confidence: 0.805438105

00:13:54.804 --> 00:13:57.228 sensory processing and integration.

NOTE Confidence: 0.805438105

00:13:57.230 --> 00:13:58.424 And very specifically,

NOTE Confidence: 0.805438105

00:13:58.424 --> 00:13:59.220 for example,

NOTE Confidence: 0.805438105

00:13:59.220 --> 00:14:01.304 a stronger connectivity between

NOTE Confidence: 0.805438105

00:14:01.304 --> 00:14:03.909 amygdala and the anterior insula

NOTE Confidence: 0.805438105

00:14:03.909 --> 00:14:06.429 and this higher connectivity.

NOTE Confidence: 0.871159692

00:14:08.700 --> 00:14:12.662 Actually this is yet another another network

NOTE Confidence: 0.871159692

00:14:12.662 --> 00:14:15.539 where we see a stronger connectivity to

NOTE Confidence: 0.871159692

00:14:15.539 --> 00:14:19.123 the supramarginal gyrus and mediated the

NOTE Confidence: 0.871159692

00:14:19.123 --> 00:14:21.603 association between maternal cortisol

NOTE Confidence: 0.871159692

00:14:21.603 --> 00:14:23.636 concentrations and internalizing problems

NOTE Confidence: 0.871159692

00:14:23.636 --> 00:14:26.758 when the children were two years old.

NOTE Confidence: 0.871159692

00:14:26.760 --> 00:14:29.760 So I think this is really important that.

NOTE Confidence: 0.871159692

00:14:29.760 --> 00:14:32.931 We do see that the variation in

NOTE Confidence: 0.871159692

00:14:32.931 --> 00:14:35.574 brain phenotypes in the newborn

NOTE Confidence: 0.871159692

00:14:35.574 --> 00:14:38.554 actually do predict later behavior,

NOTE Confidence: 0.871159692

00:14:38.560 --> 00:14:39.343 later cognitive function,

NOTE Confidence: 0.871159692

00:14:39.343 --> 00:14:41.460 and I'll show you some more of that.

NOTE Confidence: 0.871159692

00:14:41.460 --> 00:14:44.070 So this variation that we see

NOTE Confidence: 0.871159692

00:14:44.070 --> 00:14:46.970 does seem to be meaningful.

NOTE Confidence: 0.871159692

00:14:46.970 --> 00:14:49.875 So, Umm, we did find that elevated

NOTE Confidence: 0.871159692

00:14:49.875 --> 00:14:51.120 material cortisol concentrations

NOTE Confidence: 0.871159692

00:14:51.186 --> 00:14:53.261 are associated with larger amygdala

NOTE Confidence: 0.871159692

00:14:53.261 --> 00:14:55.336 volumes and this was associated

NOTE Confidence: 0.871159692

00:14:55.402 --> 00:14:57.382 with more effective symptoms and

NOTE Confidence: 0.871159692

00:14:57.382 --> 00:14:59.362 also with increased the mitella

NOTE Confidence: 0.871159692

00:14:59.370 --> 00:15:01.346 connectivity with cortisol with

NOTE Confidence: 0.871159692

00:15:01.346 --> 00:15:03.816 cortical structures that were associated

NOTE Confidence: 0.871159692

00:15:03.816 --> 00:15:06.298 with higher internalizing problems.

NOTE Confidence: 0.871159692

00:15:06.300 --> 00:15:08.280 And this may support higher vigilance

NOTE Confidence: 0.871159692

00:15:08.280 --> 00:15:10.430 and offspring of mothers who experience

NOTE Confidence: 0.871159692

00:15:10.430 --> 00:15:12.350 high stress during pregnancy and

NOTE Confidence: 0.871159692

00:15:12.350 --> 00:15:14.244 therefore could increase the risk

NOTE Confidence: 0.871159692

00:15:14.244 --> 00:15:15.959 for effective and anxiety disorders,

NOTE Confidence: 0.871159692

00:15:15.960 --> 00:15:18.270 although eventually this might have.

NOTE Confidence: 0.871159692

00:15:18.270 --> 00:15:20.874 Or if an evolutionary purpose to

NOTE Confidence: 0.871159692

00:15:20.874 --> 00:15:24.097 prepare these children to a potential

NOTE Confidence: 0.871159692

00:15:24.097 --> 00:15:26.209 stressful extrauterine environment.

NOTE Confidence: 0.871159692

00:15:26.210 --> 00:15:26.790 Umm,

NOTE Confidence: 0.871159692

00:15:26.790 --> 00:15:30.270 we did see these interesting sex

NOTE Confidence: 0.871159692

00:15:30.270 --> 00:15:32.560 specific effects and we are not

NOTE Confidence: 0.871159692

00:15:32.560 --> 00:15:35.070 really clear why this is and we

NOTE Confidence: 0.871159692

00:15:35.070 --> 00:15:37.248 cannot say that in general females

NOTE Confidence: 0.871159692

00:15:37.248 --> 00:15:39.730 are more susceptible than males.

NOTE Confidence: 0.871159692

00:15:39.730 --> 00:15:41.718 There are a lot of examples where

NOTE Confidence: 0.871159692

00:15:41.718 --> 00:15:43.683 it seems like for certain exposure

NOTE Confidence: 0.871159692

00:15:43.683 --> 00:15:45.433 and certain outcomes males seem

NOTE Confidence: 0.871159692

00:15:45.433 --> 00:15:47.230 to be more susceptible.

NOTE Confidence: 0.871159692

00:15:47.230 --> 00:15:49.234 But what we continuously see when

NOTE Confidence: 0.871159692

00:15:49.234 --> 00:15:51.170 we look at variational cortisol,

NOTE Confidence: 0.871159692

00:15:51.170 --> 00:15:54.296 it seems like females are more

NOTE Confidence: 0.871159692

00:15:54.296 --> 00:15:56.380 susceptible and some reasons.

NOTE Confidence: 0.871159692

00:15:56.380 --> 00:15:57.900 Um could be, for example,

NOTE Confidence: 0.871159692

00:15:57.900 --> 00:15:59.712 that there are sex differences in

NOTE Confidence: 0.871159692

00:15:59.712 --> 00:16:01.293 the timing of glucocorticoid receptor

NOTE Confidence: 0.871159692

00:16:01.293 --> 00:16:02.878 expression in the fetal brain,

NOTE Confidence: 0.871159692

00:16:02.880 --> 00:16:05.862 and there is also sex differences in

NOTE Confidence: 0.871159692

00:16:05.862 --> 00:16:07.140 placental glucocorticoid receptor

NOTE Confidence: 0.871159692

00:16:07.208 --> 00:16:07.940 functioning.

NOTE Confidence: 0.871159692

00:16:07.940 --> 00:16:10.420 And also it has been shown in adults

NOTE Confidence: 0.871159692

00:16:10.420 --> 00:16:12.727 that chronic stress had different has

NOTE Confidence: 0.871159692

00:16:12.727 --> 00:16:15.157 different effects in males and females.

NOTE Confidence: 0.871159692

00:16:15.160 --> 00:16:17.360 So dendritic expansion in females

NOTE Confidence: 0.871159692

00:16:17.360 --> 00:16:19.120 but retraction in males.

NOTE Confidence: 0.871159692

00:16:19.120 --> 00:16:21.576 So we don't know yet why this is,

NOTE Confidence: 0.871159692

00:16:21.580 --> 00:16:24.975 but it's something that we consistently see.

NOTE Confidence: 0.871159692

00:16:24.980 --> 00:16:28.250 I will now talk about some of

NOTE Confidence: 0.871159692

00:16:28.250 --> 00:16:31.345 our findings in association with

NOTE Confidence: 0.871159692

00:16:31.345 --> 00:16:33.885 variation in maternal interleukin

NOTE Confidence: 0.871159692

00:16:33.885 --> 00:16:36.492 6 concentrations and I already want

NOTE Confidence: 0.871159692

00:16:36.492 --> 00:16:38.490 to say we we looked at.

NOTE Confidence: 0.871159692

00:16:38.490 --> 00:16:40.026 Whether there is any moderation by

NOTE Confidence: 0.871159692

00:16:40.026 --> 00:16:42.374 fetal sex as well, and there was not.

NOTE Confidence: 0.871159692

00:16:42.374 --> 00:16:44.805 So here males and females seem to

NOTE Confidence: 0.871159692

00:16:44.805 --> 00:16:47.073 be equally affected by higher levels

NOTE Confidence: 0.871159692

00:16:47.073 --> 00:16:49.290 of interleukin 6 concentrations.

NOTE Confidence: 0.871159692

00:16:49.290 --> 00:16:49.942 So yeah,

NOTE Confidence: 0.871159692

00:16:49.942 --> 00:16:51.898 I already said a higher inflammatory

NOTE Confidence: 0.871159692

00:16:51.898 --> 00:16:54.893 measure is a risk factor for various

NOTE Confidence: 0.871159692

00:16:54.893 --> 00:16:55.807 neurodevelopmental disorders.

NOTE Confidence: 0.871159692

00:16:55.810 --> 00:16:59.840 And like various conditions like

NOTE Confidence: 0.871159692

00:16:59.840 --> 00:17:01.388 obesity and infection,

NOTE Confidence: 0.871159692

00:17:01.388 --> 00:17:03.602 as well as psychological stress are

NOTE Confidence: 0.871159692

00:17:03.602 --> 00:17:05.403 associated with higher interleukin

NOTE Confidence: 0.871159692

00:17:05.403 --> 00:17:06.864 6 concentrations. Umm.

NOTE Confidence: 0.871159692

00:17:06.864 --> 00:17:09.588 It seems like Interleukin six really

NOTE Confidence: 0.871159692

00:17:09.588 --> 00:17:12.237 plays an important role because in

NOTE Confidence: 0.871159692

00:17:12.237 --> 00:17:17.010 an animal model, if you block Interleukin 6,

NOTE Confidence: 0.871159692

00:17:17.010 --> 00:17:18.130 if you give an sorry,

NOTE Confidence: 0.871159692

00:17:18.130 --> 00:17:20.769 if you give an interleukin 6 antibody,

NOTE Confidence: 0.871159692

00:17:20.770 --> 00:17:23.032 it blocks the effect of maternal

NOTE Confidence: 0.871159692

00:17:23.032 --> 00:17:23.786 immune activation.

NOTE Confidence: 0.871159692

00:17:23.790 --> 00:17:26.414 So it it really does seem to be

NOTE Confidence: 0.871159692

00:17:26.414 --> 00:17:28.928 to play a very specific role.

NOTE Confidence: 0.871159692

00:17:28.930 --> 00:17:30.042 As I said earlier,

NOTE Confidence: 0.871159692

00:17:30.042 --> 00:17:30.598 Interleukin 6,

NOTE Confidence: 0.871159692

00:17:30.600 --> 00:17:32.050 there's some evidence that it

NOTE Confidence: 0.871159692

00:17:32.050 --> 00:17:33.210 can pass the placenta,

NOTE Confidence: 0.871159692

00:17:33.210 --> 00:17:34.665 but there's definitely much more

NOTE Confidence: 0.871159692

00:17:34.665 --> 00:17:36.486 evidence that it will induce inflammation

NOTE Confidence: 0.871159692

00:17:36.486 --> 00:17:38.370 in the placenta and the placenta.

NOTE Confidence: 0.763144301846154

00:17:38.370 --> 00:17:39.978 Itself produces cytokines.

NOTE Confidence: 0.763144301846154

00:17:39.978 --> 00:17:42.658 And then of course there's

NOTE Confidence: 0.763144301846154

00:17:42.658 --> 00:17:45.200 really a lot of evidence,

NOTE Confidence: 0.763144301846154

00:17:45.200 --> 00:17:46.888 preclinical evidence for maternal

NOTE Confidence: 0.763144301846154

00:17:46.888 --> 00:17:48.576 immune activation during pregnancy,

NOTE Confidence: 0.763144301846154

00:17:48.580 --> 00:17:50.204 altering fetal brain development.

NOTE Confidence: 0.763144301846154

00:17:50.204 --> 00:17:52.640 So all I'm going to show

NOTE Confidence: 0.763144301846154

00:17:52.717 --> 00:17:54.607 you now is in the newborns.

NOTE Confidence: 0.763144301846154

00:17:54.610 --> 00:17:59.798 And again, we found our larger mikalah

NOTE Confidence: 0.763144301846154

00:17:59.798 --> 00:18:02.522 volume in those newborns whose mothers

NOTE Confidence: 0.763144301846154

00:18:02.522 --> 00:18:05.570 had higher interleukin 6 concentrations.

NOTE Confidence: 0.763144301846154

00:18:05.570 --> 00:18:06.580 And as I said earlier,

NOTE Confidence: 0.763144301846154

00:18:06.580 --> 00:18:09.555 there was no sex specific effect here.

NOTE Confidence: 0.763144301846154

00:18:09.560 --> 00:18:14.464 Umm. We also looked at a metal icon

NOTE Confidence: 0.763144301846154

00:18:14.464 --> 00:18:18.040 activity here and there was a stronger

NOTE Confidence: 0.763144301846154

00:18:18.040 --> 00:18:20.340 bilateral amygdala connectivity to brain

NOTE Confidence: 0.763144301846154

00:18:20.340 --> 00:18:22.939 regions involved in sensory processing,

NOTE Confidence: 0.763144301846154

00:18:22.940 --> 00:18:24.578 like the fusiform,

NOTE Confidence: 0.763144301846154

00:18:24.578 --> 00:18:26.216 the somatosensory cortex,

NOTE Confidence: 0.763144301846154

00:18:26.220 --> 00:18:27.584 the thalamus.

NOTE Confidence: 0.763144301846154

00:18:27.584 --> 00:18:31.676 Also brain areas involved in salience

NOTE Confidence: 0.763144301846154

00:18:31.680 --> 00:18:34.900 detection like the anterior insula,

NOTE Confidence: 0.763144301846154

00:18:34.900 --> 00:18:36.986 as well as learning and memory like

NOTE Confidence: 0.763144301846154

00:18:36.986 --> 00:18:39.596 the cottage and parahippocampal gyrus.

NOTE Confidence: 0.763144301846154

00:18:39.596 --> 00:18:44.890 And this is just to show you a scatter

NOTE Confidence: 0.763144301846154

00:18:44.890 --> 00:18:47.910 plot of one of these connections.

NOTE Confidence: 0.763144301846154

00:18:47.910 --> 00:18:51.070 This is the amygdala anterior

NOTE Confidence: 0.763144301846154

00:18:51.070 --> 00:18:53.776 insula connection and how it is

NOTE Confidence: 0.763144301846154

00:18:53.776 --> 00:18:55.571 associated with varying levels of

NOTE Confidence: 0.763144301846154

00:18:55.571 --> 00:18:57.148 interleukin 6 during pregnancy.

NOTE Confidence: 0.763144301846154

00:18:57.150 --> 00:18:59.190 And I should say I'm sorry

NOTE Confidence: 0.763144301846154

00:18:59.190 --> 00:19:00.930 I haven't said that yet.

NOTE Confidence: 0.763144301846154

00:19:00.930 --> 00:19:02.874 Here we are looking at average

NOTE Confidence: 0.763144301846154

00:19:02.874 --> 00:19:03.846 interleukin 6 concentrations.

NOTE Confidence: 0.763144301846154

00:19:03.850 --> 00:19:07.066 We collected maternal samples three times

NOTE Confidence: 0.763144301846154

00:19:07.066 --> 00:19:10.210 during pregnancy and because interlocken.

NOTE Confidence: 0.763144301846154

00:19:10.210 --> 00:19:12.660 6 concentrations were so highly

NOTE Confidence: 0.763144301846154

00:19:12.660 --> 00:19:14.130 correlated across pregnancy,

NOTE Confidence: 0.763144301846154

00:19:14.130 --> 00:19:15.478 we calculated an average.

NOTE Confidence: 0.763144301846154

00:19:15.478 --> 00:19:18.374 We felt we are not really in the

NOTE Confidence: 0.763144301846154

00:19:18.374 --> 00:19:20.792 position of looking at timing specific

NOTE Confidence: 0.763144301846154

00:19:20.792 --> 00:19:23.016 effects because they are so highly

NOTE Confidence: 0.763144301846154

00:19:23.016 --> 00:19:25.038 correlated and we only have this

NOTE Confidence: 0.763144301846154

00:19:25.040 --> 00:19:27.338 one time measure in the newborn.

NOTE Confidence: 0.763144301846154

00:19:27.340 --> 00:19:30.092 So trying to draw any kind of conclusions

NOTE Confidence: 0.763144301846154

00:19:30.092 --> 00:19:32.510 of time specific effects I don't

NOTE Confidence: 0.763144301846154

00:19:32.510 --> 00:19:34.994 think would be warranted with this

NOTE Confidence: 0.763144301846154

00:19:35.070 --> 00:19:37.667 design and what the data looked like.

NOTE Confidence: 0.763144301846154

00:19:37.670 --> 00:19:38.714 And Umm,

NOTE Confidence: 0.763144301846154

00:19:38.714 --> 00:19:41.324 I have done all this,

NOTE Confidence: 0.763144301846154

00:19:41.330 --> 00:19:44.510 all this work with my collaborators

NOTE Confidence: 0.763144301846154

00:19:44.510 --> 00:19:48.390 Damien Fair and Alice Graham at back then,

NOTE Confidence: 0.763144301846154

00:19:48.390 --> 00:19:50.514 which is you,

NOTE Confidence: 0.763144301846154

00:19:50.514 --> 00:19:54.762 Damien Ferris now in Minnesota and.

NOTE Confidence: 0.763144301846154

00:19:54.770 --> 00:19:57.026 So they have really let all the efforts

NOTE Confidence: 0.763144301846154

00:19:57.026 --> 00:19:59.324 on the resting state analysis and

NOTE Confidence: 0.763144301846154

00:19:59.324 --> 00:20:01.409 then anything related to diffusion

NOTE Confidence: 0.763144301846154

00:20:01.409 --> 00:20:03.622 tensor imaging that I will be talking

NOTE Confidence: 0.763144301846154

00:20:03.622 --> 00:20:05.716 about as well as the brain anatomy

NOTE Confidence: 0.763144301846154

00:20:05.716 --> 00:20:07.588 we have done in collaboration with

NOTE Confidence: 0.763144301846154

00:20:07.588 --> 00:20:09.564 Martin Steiner and John Gilmore at

NOTE Confidence: 0.763144301846154

00:20:09.564 --> 00:20:11.174 the University of North Carolina.

NOTE Confidence: 0.763144301846154

00:20:11.180 --> 00:20:13.658 And the next slide I'm going to

NOTE Confidence: 0.763144301846154

00:20:13.658 --> 00:20:16.814 show you was really mainly led by by

NOTE Confidence: 0.763144301846154

00:20:16.814 --> 00:20:19.326 Damien and here we looked at whole

NOTE Confidence: 0.763144301846154

00:20:19.326 --> 00:20:20.730 brain connectivity in association

NOTE Confidence: 0.763144301846154

00:20:20.796 --> 00:20:23.010 in the new ones and association

NOTE Confidence: 0.763144301846154

00:20:23.010 --> 00:20:24.660 with higher maternal interleukin 6.

NOTE Confidence: 0.763144301846154

00:20:24.660 --> 00:20:27.244 Concentrations during pregnancy and

NOTE Confidence: 0.763144301846154

00:20:27.244 --> 00:20:29.828 saw associations within networks

NOTE Confidence: 0.763144301846154

00:20:29.828 --> 00:20:32.949 again and the salience network,

NOTE Confidence: 0.763144301846154

00:20:32.950 --> 00:20:34.290 the dorsal attention network as

NOTE Confidence: 0.763144301846154

00:20:34.290 --> 00:20:35.630 well as the visual network,

NOTE Confidence: 0.763144301846154

00:20:35.630 --> 00:20:39.830 but also various between network connections,

NOTE Confidence: 0.763144301846154

00:20:39.830 --> 00:20:43.466 as you can see here below.

NOTE Confidence: 0.763144301846154

00:20:43.470 --> 00:20:44.770 As an additional modality,

NOTE Confidence: 0.763144301846154

00:20:44.770 --> 00:20:46.395 we looked at diffusion tensor

NOTE Confidence: 0.763144301846154

00:20:46.395 --> 00:20:48.039 imaging and we were specifically

NOTE Confidence: 0.763144301846154

00:20:48.039 --> 00:20:49.307 interested in this track,

NOTE Confidence: 0.763144301846154

00:20:49.310 --> 00:20:50.519 the unsigned fasciculus,

NOTE Confidence: 0.763144301846154

00:20:50.519 --> 00:20:52.937 which is a pathway that connects

NOTE Confidence: 0.763144301846154

00:20:52.937 --> 00:20:55.256 the temporal lobe with the inferior

NOTE Confidence: 0.763144301846154

00:20:55.256 --> 00:20:57.964 frontal gyrus and has us by the

NOTE Confidence: 0.763144301846154

00:20:57.964 --> 00:20:59.548 amygdala and the hippocampus.

NOTE Confidence: 0.763144301846154

00:20:59.550 --> 00:21:03.274 And we did analysis along this tract

NOTE Confidence: 0.763144301846154

00:21:03.274 --> 00:21:05.233 of different diffusion parameters

NOTE Confidence: 0.763144301846154

00:21:05.233 --> 00:21:07.048 as you can see here.

NOTE Confidence: 0.763144301846154

00:21:07.050 --> 00:21:09.890 So this is the tract and what we

NOTE Confidence: 0.763144301846154

00:21:09.890 --> 00:21:12.315 saw bilaterally was that higher

NOTE Confidence: 0.763144301846154

00:21:12.315 --> 00:21:13.409 maternal interleukin.

NOTE Confidence: 0.763144301846154

00:21:13.410 --> 00:21:15.600 Six was associated with lower

NOTE Confidence: 0.763144301846154

00:21:15.600 --> 00:21:17.790 fracture anisotropy which is a

NOTE Confidence: 0.763144301846154

00:21:17.868 --> 00:21:19.838 measure of lower maturation of

NOTE Confidence: 0.763144301846154

00:21:19.838 --> 00:21:21.808 this tract and this was

NOTE Confidence: 0.806295120333333

00:21:21.888 --> 00:21:24.474 very specifically where around the track

NOTE Confidence: 0.806295120333333

00:21:24.474 --> 00:21:29.190 where it passes by the amygdala and I think

NOTE Confidence: 0.806295120333333

00:21:29.190 --> 00:21:33.062 this is interesting because it's it's a

NOTE Confidence: 0.806295120333333

00:21:33.062 --> 00:21:36.590 bilateral and this is just a scatter plot.

NOTE Confidence: 0.806295120333333

00:21:36.590 --> 00:21:39.488 This is here you can see what the tracks

NOTE Confidence: 0.806295120333333

00:21:39.488 --> 00:21:41.780 look like and what the results look like.

NOTE Confidence: 0.806295120333333

00:21:41.780 --> 00:21:45.828 So it's it's. It's really a pretty nice

NOTE Confidence: 0.806295120333333

00:21:45.828 --> 00:21:48.419 linear association and unfortunately only

NOTE Confidence: 0.806295120333333

00:21:48.419 --> 00:21:52.399 in a really small subgroup here we had

NOTE Confidence: 0.806295120333333

00:21:52.399 --> 00:21:56.089 repeated MRI scans at 12 month age as well.

NOTE Confidence: 0.806295120333333

00:21:56.090 --> 00:21:58.601 So we looked at whether there is also an

NOTE Confidence: 0.806295120333333

00:21:58.601 --> 00:22:00.735 association between maternal interleukin 6

NOTE Confidence: 0.806295120333333

00:22:00.735 --> 00:22:02.975 concentrations and these diffusion measures,

NOTE Confidence: 0.806295120333333

00:22:02.980 --> 00:22:04.690 so 12 month age, which was not the case,

NOTE Confidence: 0.806295120333333

00:22:04.690 --> 00:22:06.410 it was not significant anymore.

NOTE Confidence: 0.806295120333333

00:22:06.410 --> 00:22:08.797 But what had happened is that the

NOTE Confidence: 0.806295120333333

00:22:08.797 --> 00:22:10.216 there was accelerated maturation

NOTE Confidence: 0.806295120333333

00:22:10.216 --> 00:22:12.547 now over the first year of life,

NOTE Confidence: 0.806295120333333

00:22:12.550 --> 00:22:13.506 which I mean it's.

NOTE Confidence: 0.806295120333333

00:22:13.506 --> 00:22:14.940 Very small sample and it needs

NOTE Confidence: 0.806295120333333

00:22:14.998 --> 00:22:15.829 to be replicated.

NOTE Confidence: 0.806295120333333

00:22:15.830 --> 00:22:18.378 But I think it is really interesting

NOTE Confidence: 0.806295120333333

00:22:18.378 --> 00:22:21.495 in the if we think about like what

NOTE Confidence: 0.806295120333333

00:22:21.495 --> 00:22:24.390 we know about this brain overgrowth,

NOTE Confidence: 0.806295120333333

00:22:24.390 --> 00:22:26.959 for example in the context of autism

NOTE Confidence: 0.806295120333333

00:22:26.959 --> 00:22:29.048 spectrum disorders that has been shown.

NOTE Confidence: 0.806295120333333

00:22:29.050 --> 00:22:31.738 So there might be like an initial delay

NOTE Confidence: 0.806295120333333

00:22:31.738 --> 00:22:34.590 and then an overcompensation and maybe

NOTE Confidence: 0.806295120333333

00:22:34.590 --> 00:22:38.880 this is something that we see here.

NOTE Confidence: 0.806295120333333

00:22:38.880 --> 00:22:41.176 So this is a summary of the various

NOTE Confidence: 0.806295120333333

00:22:41.176 --> 00:22:43.335 findings with variation and maternal

NOTE Confidence: 0.806295120333333

00:22:43.335 --> 00:22:44.859 interleukin 6 concentrations.

NOTE Confidence: 0.806295120333333

00:22:44.860 --> 00:22:48.648 And for all these outcomes that

NOTE Confidence: 0.806295120333333

00:22:48.648 --> 00:22:49.480 we have looked at,

NOTE Confidence: 0.806295120333333

00:22:49.480 --> 00:22:51.860 we see associations with behavioral

NOTE Confidence: 0.806295120333333

00:22:51.860 --> 00:22:54.240 or cognitive function in the

NOTE Confidence: 0.806295120333333

00:22:54.315 --> 00:22:56.100 first two years of life.

NOTE Confidence: 0.806295120333333

00:22:56.100 --> 00:22:56.784 So this,

NOTE Confidence: 0.806295120333333

00:22:56.784 --> 00:22:59.178 it makes a lot of connectivity was

NOTE Confidence: 0.806295120333333

00:22:59.178 --> 00:23:01.640 associated with a measure of executive

NOTE Confidence: 0.806295120333333

00:23:01.640 --> 00:23:03.284 function response inhibition when

NOTE Confidence: 0.806295120333333

00:23:03.284 --> 00:23:05.536 the children were two years old.

NOTE Confidence: 0.806295120333333

00:23:05.540 --> 00:23:07.626 Does it make a lot of connectivity

NOTE Confidence: 0.806295120333333

00:23:07.626 --> 00:23:08.900 and especially this accelerated

NOTE Confidence: 0.806295120333333

00:23:08.900 --> 00:23:10.850 increase also during the first year

NOTE Confidence: 0.806295120333333

00:23:10.850 --> 00:23:13.143 of life was associated with cognitive

NOTE Confidence: 0.806295120333333

00:23:13.143 --> 00:23:14.400 impaired cognitive development

NOTE Confidence: 0.806295120333333

00:23:14.400 --> 00:23:17.103 based on the Bayley scales of infant

NOTE Confidence: 0.806295120333333

00:23:17.103 --> 00:23:19.490 development at one year age and the

NOTE Confidence: 0.806295120333333

00:23:19.557 --> 00:23:21.577 whole brain functional connectivity

NOTE Confidence: 0.806295120333333

00:23:21.577 --> 00:23:24.102 was predictive of working memory

NOTE Confidence: 0.806295120333333

00:23:24.102 --> 00:23:25.918 function that two years age.

NOTE Confidence: 0.806295120333333

00:23:25.920 --> 00:23:29.238 And because we had these various

NOTE Confidence: 0.806295120333333

00:23:29.238 --> 00:23:33.033 cognitive aspects that were altered in

NOTE Confidence: 0.806295120333333

00:23:33.033 --> 00:23:35.877 association with maternal interleukin.

NOTE Confidence: 0.806295120333333

00:23:35.880 --> 00:23:37.750 Six we wanted to see,

NOTE Confidence: 0.806295120333333

00:23:37.750 --> 00:23:40.270 although again it was like a

NOTE Confidence: 0.806295120333333

00:23:40.270 --> 00:23:43.149 small sample at four to five years

NOTE Confidence: 0.806295120333333

00:23:43.150 --> 00:23:45.734 whether we we have like for a very

NOTE Confidence: 0.806295120333333

00:23:45.734 --> 00:23:47.810 general cognitive measure here it's

NOTE Confidence: 0.806295120333333

00:23:47.810 --> 00:23:49.626 fluid intelligence and association

NOTE Confidence: 0.806295120333333

00:23:49.626 --> 00:23:51.550 between maternal and telekin.

NOTE Confidence: 0.806295120333333

00:23:51.550 --> 00:23:54.420 6 And this measure of fluid intelligence

NOTE Confidence: 0.806295120333333

00:23:54.420 --> 00:23:57.487 which was the case and this was

NOTE Confidence: 0.806295120333333

00:23:57.487 --> 00:23:59.687 after adjusting from many variables

NOTE Confidence: 0.806295120333333

00:23:59.687 --> 00:24:02.027 that would like be qualified,

NOTE Confidence: 0.806295120333333

00:24:02.030 --> 00:24:03.857 would be indicators of the quality of

NOTE Confidence: 0.806295120333333

00:24:03.857 --> 00:24:05.997 the post Natal environment like the home.

NOTE Confidence: 0.806295120333333

00:24:06.000 --> 00:24:07.902 Environment maternal sensitivity,

NOTE Confidence: 0.806295120333333

00:24:07.902 --> 00:24:09.170 for example,

NOTE Confidence: 0.806295120333333

00:24:09.170 --> 00:24:13.434 and we also try to see whether we can

NOTE Confidence: 0.806295120333333

00:24:13.434 --> 00:24:15.298 identify some structural variation

NOTE Confidence: 0.806295120333333

00:24:15.298 --> 00:24:18.334 and in brain structure that might

NOTE Confidence: 0.806295120333333

00:24:18.334 --> 00:24:20.859 underlie this association and saw

NOTE Confidence: 0.806295120333333

00:24:20.859 --> 00:24:22.681 that potentially specifically again

NOTE Confidence: 0.806295120333333

00:24:22.681 --> 00:24:24.866 here in the prefrontal cortex,

NOTE Confidence: 0.806295120333333

00:24:24.870 --> 00:24:28.170 the horse triangularis might play

NOTE Confidence: 0.806295120333333

00:24:28.170 --> 00:24:31.470 a role in this association.

NOTE Confidence: 0.806295120333333

00:24:31.470 --> 00:24:35.136 There is more evidence now also

NOTE Confidence: 0.806295120333333

00:24:35.136 --> 00:24:36.969 from other groups,

NOTE Confidence: 0.806295120333333

00:24:36.970 --> 00:24:40.090 showing that maternal immune activation,

NOTE Confidence: 0.806295120333333

00:24:40.090 --> 00:24:42.270 here also in humans,

NOTE Confidence: 0.806295120333333

00:24:42.270 --> 00:24:44.995 is associated with neonatal brain

NOTE Confidence: 0.806295120333333

00:24:44.995 --> 00:24:46.760 connectivity here specifically

NOTE Confidence: 0.806295120333333

00:24:46.760 --> 00:24:48.662 the the salience network.

NOTE Confidence: 0.806295120333333

00:24:48.662 --> 00:24:51.326 This is an interesting study because

NOTE Confidence: 0.806295120333333

00:24:51.326 --> 00:24:53.993 it's a it's a real longitudinal

NOTE Confidence: 0.806295120333333

00:24:53.993 --> 00:24:56.143 study looking at maternal cytokine

NOTE Confidence: 0.833068512692308

00:24:56.214 --> 00:24:59.209 concentrations during pregnancy and brain

NOTE Confidence: 0.833068512692308

00:24:59.209 --> 00:25:02.180 circuitry 45 years later in adults.

NOTE Confidence: 0.833068512692308

00:25:02.180 --> 00:25:04.532 There is also evidence,

NOTE Confidence: 0.833068512692308

00:25:04.532 --> 00:25:08.060 at least in terms of neurodevelopmental

NOTE Confidence: 0.833068512692308

00:25:08.162 --> 00:25:11.057 delay from like very impressive

NOTE Confidence: 0.833068512692308

00:25:11.060 --> 00:25:13.751 Scandinavian birth records,

NOTE Confidence: 0.833068512692308

00:25:13.751 --> 00:25:17.339 and also some interesting.

NOTE Confidence: 0.833068512692308

00:25:17.340 --> 00:25:21.220 Studies in nonhuman primates.

NOTE Confidence: 0.833068512692308

00:25:21.220 --> 00:25:22.369 So to conclude,

NOTE Confidence: 0.833068512692308

00:25:22.369 --> 00:25:24.284 there is evidence for prenatal

NOTE Confidence: 0.833068512692308

00:25:24.284 --> 00:25:25.941 conditions like various forms

NOTE Confidence: 0.833068512692308

00:25:25.941 --> 00:25:28.425 of stress but also cortisol and

NOTE Confidence: 0.833068512692308

00:25:28.425 --> 00:25:30.042 inflamed inflammatory medias like

NOTE Confidence: 0.833068512692308

00:25:30.042 --> 00:25:31.862 interleukin 6 to be associated

NOTE Confidence: 0.833068512692308

00:25:31.862 --> 00:25:33.313 with fetal brain development.

NOTE Confidence: 0.833068512692308

00:25:33.313 --> 00:25:35.431 And showed you evidence for associations

NOTE Confidence: 0.833068512692308

00:25:35.431 --> 00:25:37.445 with the size of the hippocampus

NOTE Confidence: 0.833068512692308

00:25:37.445 --> 00:25:39.245 and amygdala as well as structural

NOTE Confidence: 0.833068512692308

00:25:39.245 --> 00:25:40.837 and functional connectivity of

NOTE Confidence: 0.833068512692308

00:25:40.837 --> 00:25:43.750 the amygdala and as well as global

NOTE Confidence: 0.833068512692308

00:25:43.750 --> 00:25:45.422 cortical volume and thickness

NOTE Confidence: 0.833068512692308

00:25:45.422 --> 00:25:47.898 and the functional connectome.

NOTE Confidence: 0.833068512692308

00:25:47.900 --> 00:25:50.228 And it really seems like neural

NOTE Confidence: 0.833068512692308

00:25:50.228 --> 00:25:51.780 phenotypes are being programmed.

NOTE Confidence: 0.833068512692308

00:25:51.780 --> 00:25:54.072 Increased risk for neurodevelopmental

NOTE Confidence: 0.833068512692308

00:25:54.072 --> 00:25:56.364 and psychiatric disorders and

NOTE Confidence: 0.833068512692308

00:25:56.364 --> 00:25:58.778 that potentially these stress

NOTE Confidence: 0.833068512692308

00:25:58.778 --> 00:26:00.578 sensitive biological mediators,

NOTE Confidence: 0.833068512692308

00:26:00.580 --> 00:26:02.436 variation and maternal stress

NOTE Confidence: 0.833068512692308

00:26:02.436 --> 00:26:05.355 biology do play a role for

NOTE Confidence: 0.833068512692308

00:26:05.355 --> 00:26:08.330 programming in the fetal brain.

NOTE Confidence: 0.833068512692308

00:26:08.330 --> 00:26:10.647 I think if we talk about MRI,

NOTE Confidence: 0.833068512692308

00:26:10.647 --> 00:26:13.286 we have to also acknowledge this paper.

NOTE Confidence: 0.833068512692308

00:26:13.290 --> 00:26:14.955 This is something that has

NOTE Confidence: 0.833068512692308

00:26:14.955 --> 00:26:16.620 been published last year and

NOTE Confidence: 0.833068512692308

00:26:16.689 --> 00:26:18.569 my collaborators Damian Ferron,

NOTE Confidence: 0.833068512692308

00:26:18.570 --> 00:26:21.066 Ellis Graham and Oscar Miranda Dominguez,

NOTE Confidence: 0.833068512692308

00:26:21.070 --> 00:26:22.030 who I work with closely,

NOTE Confidence: 0.833068512692308

00:26:22.030 --> 00:26:25.138 are all involved in this and.

NOTE Confidence: 0.833068512692308

00:26:25.140 --> 00:26:28.584 So I think there is a crisis,

NOTE Confidence: 0.833068512692308

00:26:28.590 --> 00:26:30.030 a replication crisis,

NOTE Confidence: 0.833068512692308

00:26:30.030 --> 00:26:31.950 something similar that has

NOTE Confidence: 0.833068512692308

00:26:31.950 --> 00:26:35.790 affected a genomics a while ago,

NOTE Confidence: 0.833068512692308

00:26:35.790 --> 00:26:38.100 where this study really suggests that if

NOTE Confidence: 0.833068512692308

00:26:38.100 --> 00:26:41.228 we want to look at brain wide associations,

NOTE Confidence: 0.833068512692308

00:26:41.230 --> 00:26:42.994 especially with certain phenotypes,

NOTE Confidence: 0.833068512692308

00:26:42.994 --> 00:26:45.199 especially when it's complex phenotypes

NOTE Confidence: 0.833068512692308

00:26:45.199 --> 00:26:46.970 like mental health outcomes,

NOTE Confidence: 0.833068512692308

00:26:46.970 --> 00:26:48.932 we need very large sample sizes

NOTE Confidence: 0.833068512692308

00:26:48.932 --> 00:26:51.000 because effect sizes are small and

NOTE Confidence: 0.833068512692308

00:26:51.000 --> 00:26:53.100 probably most studies that have been

NOTE Confidence: 0.833068512692308

00:26:53.100 --> 00:26:55.149 published are underpowered and they.

NOTE Confidence: 0.833068512692308

00:26:55.150 --> 00:26:55.514 Like,

NOTE Confidence: 0.833068512692308

00:26:55.514 --> 00:26:58.062 I think they showed the evidence for

NOTE Confidence: 0.833068512692308

00:26:58.062 --> 00:27:01.077 this very impressively in this study.

NOTE Confidence: 0.833068512692308

00:27:01.077 --> 00:27:03.372 They also did acknowledge that

NOTE Confidence: 0.833068512692308

00:27:03.372 --> 00:27:06.151 there are phenotypes where the

NOTE Confidence: 0.833068512692308

00:27:06.151 --> 00:27:07.474 associations are stronger,

NOTE Confidence: 0.833068512692308

00:27:07.474 --> 00:27:09.679 like cognitive phenotypes for example.

NOTE Confidence: 0.833068512692308

00:27:09.680 --> 00:27:10.646 But in general,

NOTE Confidence: 0.833068512692308

00:27:10.646 --> 00:27:12.900 I mean this raises really the question,

NOTE Confidence: 0.833068512692308

00:27:12.900 --> 00:27:15.084 what can we do with these smaller

NOTE Confidence: 0.833068512692308

00:27:15.084 --> 00:27:16.900 sample sizes and can we still,

NOTE Confidence: 0.833068512692308

00:27:16.900 --> 00:27:18.000 are they still worth it,

NOTE Confidence: 0.833068512692308

00:27:18.000 --> 00:27:19.716 can we still trust the results?

NOTE Confidence: 0.833068512692308

00:27:19.720 --> 00:27:20.482 And Umm.

NOTE Confidence: 0.833068512692308

00:27:20.482 --> 00:27:23.530 So we have of course done a lot

NOTE Confidence: 0.833068512692308

00:27:23.633 --> 00:27:25.160 of thinking and.

NOTE Confidence: 0.833068512692308

00:27:25.160 --> 00:27:27.449 What we what we feel about what

NOTE Confidence: 0.833068512692308

00:27:27.449 --> 00:27:29.683 we have published so far and what

NOTE Confidence: 0.833068512692308

00:27:29.683 --> 00:27:31.163 we can do going forward.

NOTE Confidence: 0.833068512692308

00:27:31.170 --> 00:27:35.042 And so I I still believe that we

NOTE Confidence: 0.833068512692308

00:27:35.042 --> 00:27:38.016 have a very good conceptual model

NOTE Confidence: 0.833068512692308

00:27:38.016 --> 00:27:40.788 and there's a lot of preclinical

NOTE Confidence: 0.833068512692308

00:27:40.788 --> 00:27:42.826 evidence kind of supporting the

NOTE Confidence: 0.833068512692308

00:27:42.826 --> 00:27:45.190 kind of analysis we have done

NOTE Confidence: 0.833068512692308

00:27:45.270 --> 00:27:48.028 and also like in support of the

NOTE Confidence: 0.833068512692308

00:27:48.028 --> 00:27:49.670 specific findings we have.

NOTE Confidence: 0.833068512692308

00:27:49.670 --> 00:27:52.526 But in the future we should

NOTE Confidence: 0.833068512692308

00:27:52.526 --> 00:27:55.229 still see whether we can do.

NOTE Confidence: 0.833068512692308

00:27:55.230 --> 00:27:57.670 Better whether there are

NOTE Confidence: 0.833068512692308

00:27:57.670 --> 00:27:59.500 opportunities for replication,

NOTE Confidence: 0.833068512692308

00:27:59.500 --> 00:28:01.708 whether we can work together more

NOTE Confidence: 0.833068512692308

00:28:01.708 --> 00:28:04.174 closely in terms of the specific

NOTE Confidence: 0.833068512692308

00:28:04.174 --> 00:28:06.469 protocols not only for data

NOTE Confidence: 0.833068512692308

00:28:06.469 --> 00:28:08.294 collection but especially also

NOTE Confidence: 0.833068512692308

00:28:08.294 --> 00:28:10.556 for processing the data they are,

NOTE Confidence: 0.833068512692308

00:28:10.560 --> 00:28:13.759 I think there are a lot of

NOTE Confidence: 0.833068512692308

00:28:13.759 --> 00:28:15.130 opportunities for collaboration.

NOTE Confidence: 0.833068512692308

00:28:15.130 --> 00:28:17.458 And there is this fetal infant

NOTE Confidence: 0.833068512692308

00:28:17.458 --> 00:28:19.954 toddler on your imaging group that

NOTE Confidence: 0.833068512692308

00:28:19.954 --> 00:28:23.356 that has been founded that really

NOTE Confidence: 0.833068512692308

00:28:23.356 --> 00:28:26.821 addresses some of these issues

NOTE Confidence: 0.833068512692308

00:28:26.821 --> 00:28:29.765 and were people who work in the

NOTE Confidence: 0.833068512692308

00:28:29.765 --> 00:28:31.009 field of Infinera imaging,

NOTE Confidence: 0.833068512692308

00:28:31.010 --> 00:28:32.810 come together and share their

NOTE Confidence: 0.833068512692308

00:28:32.810 --> 00:28:34.610 experiences and bring their protocols

NOTE Confidence: 0.864845319090909

00:28:34.666 --> 00:28:38.210 together. There's a lot of progress

NOTE Confidence: 0.864845319090909

00:28:38.210 --> 00:28:40.658 in freely available processing

NOTE Confidence: 0.864845319090909

00:28:40.658 --> 00:28:43.408 pipelines and a lot of advances.

NOTE Confidence: 0.864845319090909

00:28:43.410 --> 00:28:44.958 Then there are several.

NOTE Confidence: 0.864845319090909

00:28:44.958 --> 00:28:47.280 Consortia are trying to bring in,

NOTE Confidence: 0.864845319090909

00:28:47.280 --> 00:28:49.380 bring together the various infant samples.

NOTE Confidence: 0.864845319090909

00:28:49.380 --> 00:28:51.690 There are like this origin consortium

NOTE Confidence: 0.864845319090909

00:28:51.690 --> 00:28:54.662 that is led by Rebecca Nikaya in

NOTE Confidence: 0.864845319090909

00:28:54.662 --> 00:28:57.374 Michigan or also the Echo consortium.

NOTE Confidence: 0.864845319090909

00:28:57.380 --> 00:29:00.551 And then of course there are larger

NOTE Confidence: 0.864845319090909

00:29:00.551 --> 00:29:01.910 representative developmental in

NOTE Confidence: 0.864845319090909

00:29:01.981 --> 00:29:04.076 your imaging studies like the

NOTE Confidence: 0.864845319090909

00:29:04.076 --> 00:29:06.171 Baby Connectome project and very

NOTE Confidence: 0.864845319090909

00:29:06.244 --> 00:29:08.274 importantly coming up the HBCD

NOTE Confidence: 0.864845319090909

00:29:08.274 --> 00:29:10.240 study that I think would be very,

NOTE Confidence: 0.864845319090909

00:29:10.240 --> 00:29:12.690 very informative.

NOTE Confidence: 0.864845319090909

00:29:12.690 --> 00:29:14.720 Something that we have also

NOTE Confidence: 0.864845319090909

00:29:14.720 --> 00:29:17.489 think about is how can we huge,

NOTE Confidence: 0.864845319090909

00:29:17.490 --> 00:29:20.810 how can we use the larger consortia that

NOTE Confidence: 0.864845319090909

00:29:20.810 --> 00:29:23.632 are available right now to potentially

NOTE Confidence: 0.864845319090909

00:29:23.632 --> 00:29:26.210 inform the results in our smaller cohorts.

NOTE Confidence: 0.864845319090909

00:29:26.210 --> 00:29:28.955 And one of the things that we are trying

NOTE Confidence: 0.864845319090909

00:29:28.955 --> 00:29:31.955 to do now is to use the larger consortia

NOTE Confidence: 0.864845319090909

00:29:31.955 --> 00:29:34.984 like for example the ABC D study to

NOTE Confidence: 0.864845319090909

00:29:34.984 --> 00:29:37.060 calculate polling euro risk scores.

NOTE Confidence: 0.864845319090909

00:29:37.060 --> 00:29:40.300 So really in the sample of

NOTE Confidence: 0.864845319090909

00:29:40.300 --> 00:29:42.599 several thousand like ABC D.

NOTE Confidence: 0.864845319090909

00:29:42.600 --> 00:29:44.833 Um, look at associations with a certain

NOTE Confidence: 0.864845319090909

00:29:44.833 --> 00:29:46.898 outcome that we are interested in,

NOTE Confidence: 0.864845319090909

00:29:46.900 --> 00:29:48.403 like internalising problems,

NOTE Confidence: 0.864845319090909

00:29:48.403 --> 00:29:51.910 and then look at the functional connectivity

NOTE Confidence: 0.864845319090909

00:29:51.986 --> 00:29:54.254 that is associated with this outcome

NOTE Confidence: 0.864845319090909

00:29:54.254 --> 00:29:57.185 and then apply the weights from this

NOTE Confidence: 0.864845319090909

00:29:57.185 --> 00:29:59.885 larger consortium to our smaller samples.

NOTE Confidence: 0.864845319090909

00:29:59.890 --> 00:30:02.200 So really a very similar approach to

NOTE Confidence: 0.864845319090909

00:30:02.200 --> 00:30:04.168 polygenic risk scores and this is

NOTE Confidence: 0.864845319090909

00:30:04.168 --> 00:30:06.317 something we are currently working on and.

NOTE Confidence: 0.864845319090909

00:30:06.320 --> 00:30:09.230 We have done this for it makes a lot of

NOTE Confidence: 0.864845319090909

00:30:09.314 --> 00:30:11.969 connectivity and internalizing problems and

NOTE Confidence: 0.864845319090909

00:30:11.969 --> 00:30:15.749 we're actually able to then use this Poly.

NOTE Confidence: 0.864845319090909

00:30:15.750 --> 00:30:18.786 Pulling your risk score to predict

NOTE Confidence: 0.864845319090909

00:30:18.790 --> 00:30:21.190 emotional regulation and our infant cohort.

NOTE Confidence: 0.864845319090909

00:30:21.190 --> 00:30:24.278 So this is work in progress but this

NOTE Confidence: 0.864845319090909

00:30:24.278 --> 00:30:28.665 is and this is led by by Oscar Randos

NOTE Confidence: 0.864845319090909

00:30:28.665 --> 00:30:32.365 Dominguez and he he has yeah we I

NOTE Confidence: 0.864845319090909

00:30:32.365 --> 00:30:34.575 think we are making good progress to

NOTE Confidence: 0.864845319090909

00:30:34.575 --> 00:30:37.375 to see how we can utilize these larger

NOTE Confidence: 0.864845319090909

00:30:37.452 --> 00:30:40.014 cohorts and another example is for

NOTE Confidence: 0.864845319090909

00:30:40.014 --> 00:30:42.316 example these brain charts for human

NOTE Confidence: 0.864845319090909

00:30:42.316 --> 00:30:44.367 for the human lifespan that has been

NOTE Confidence: 0.864845319090909

00:30:44.367 --> 00:30:46.207 recently published based on like 100.

NOTE Confidence: 0.864845319090909

00:30:46.210 --> 00:30:47.020 1000 individuals,

NOTE Confidence: 0.864845319090909

00:30:47.020 --> 00:30:49.855 something similar to growth charts so that

NOTE Confidence: 0.864845319090909

00:30:49.855 --> 00:30:52.476 you can see where does your data fall,

NOTE Confidence: 0.864845319090909

00:30:52.480 --> 00:30:53.984 how representative is it,

NOTE Confidence: 0.864845319090909

00:30:53.984 --> 00:30:55.864 and then you get percentiles

NOTE Confidence: 0.864845319090909

00:30:55.864 --> 00:30:57.878 based on the larger population,

NOTE Confidence: 0.864845319090909

00:30:57.880 --> 00:31:00.571 which I think probably is a good way of

NOTE Confidence: 0.864845319090909

00:31:00.571 --> 00:31:02.489 correcting your smaller sample sizes.

NOTE Confidence: 0.864845319090909

00:31:02.490 --> 00:31:05.298 So this is something we are

NOTE Confidence: 0.864845319090909

00:31:05.298 --> 00:31:06.702 currently working on.

NOTE Confidence: 0.864845319090909

00:31:06.710 --> 00:31:09.710 And I'm happy to discuss this further later.

NOTE Confidence: 0.864845319090909

00:31:09.710 --> 00:31:11.649 But before I come to the end,

NOTE Confidence: 0.864845319090909

00:31:11.650 --> 00:31:13.743 I want to talk about this 4th

NOTE Confidence: 0.864845319090909

00:31:13.743 --> 00:31:16.030 area that I wanted to address,

NOTE Confidence: 0.864845319090909

00:31:16.030 --> 00:31:19.654 which is maternal preconceptional

NOTE Confidence: 0.864845319090909

00:31:19.654 --> 00:31:23.278 stress experiences and specifically.

NOTE Confidence: 0.864845319090909

00:31:23.280 --> 00:31:24.380 Now it doesn't work again.

NOTE Confidence: 0.654121685

00:31:30.300 --> 00:31:30.680 This slide.

NOTE Confidence: 0.6378287

00:31:34.890 --> 00:31:35.900 Maybe I stay very long.

NOTE Confidence: 0.971482275

00:31:38.250 --> 00:31:41.762 Thank you so. The UM,

NOTE Confidence: 0.971482275

00:31:41.762 --> 00:31:44.482 maternal child adverse childhood experiences

NOTE Confidence: 0.971482275

00:31:44.482 --> 00:31:48.040 and how these might potentially get

NOTE Confidence: 0.971482275

00:31:48.040 --> 00:31:51.015 transmitted to the next generation.

NOTE Confidence: 0.971482275

00:31:51.020 --> 00:31:55.740 And so, I mean we're thinking of different

NOTE Confidence: 0.971482275

00:31:55.740 --> 00:32:00.780 forms of neglect and abuse experiences and.

NOTE Confidence: 0.971482275

00:32:00.780 --> 00:32:03.147 As we all know, this is a huge problem

NOTE Confidence: 0.971482275

00:32:03.147 --> 00:32:05.079 because prevalence rates are really,

NOTE Confidence: 0.971482275

00:32:05.080 --> 00:32:05.992 really high.

NOTE Confidence: 0.971482275

00:32:05.992 --> 00:32:09.242 I think it's also really important that

NOTE Confidence: 0.971482275

00:32:09.242 --> 00:32:12.086 people working and and and perinatal

NOTE Confidence: 0.971482275

00:32:12.086 --> 00:32:14.707 medicine know that this is like such

NOTE Confidence: 0.971482275

00:32:14.707 --> 00:32:17.336 a high prevalence and that they will

NOTE Confidence: 0.971482275

00:32:17.336 --> 00:32:19.670 encounter many women who have made

NOTE Confidence: 0.971482275

00:32:19.670 --> 00:32:22.250 these kind of experiences and that

NOTE Confidence: 0.971482275

00:32:22.250 --> 00:32:25.326 potentially 1/3 of the women that they

NOTE Confidence: 0.971482275

00:32:25.326 --> 00:32:28.526 see could have these kind of risk factors.

NOTE Confidence: 0.971482275

00:32:28.530 --> 00:32:31.344 What we know from like many studies

NOTE Confidence: 0.971482275

00:32:31.344 --> 00:32:34.532 is that there is an increased risk

NOTE Confidence: 0.971482275

00:32:34.532 --> 00:32:37.382 in the exposed individual for higher.

NOTE Confidence: 0.971482275

00:32:37.390 --> 00:32:40.192 For psychiatric disorders as well As

NOTE Confidence: 0.971482275

00:32:40.192 --> 00:32:42.748 for somatic disorders and metabolic

NOTE Confidence: 0.971482275

00:32:42.748 --> 00:32:44.557 function like obesity,

NOTE Confidence: 0.971482275

00:32:44.560 --> 00:32:47.024 and we also understand some of the

NOTE Confidence: 0.971482275

00:32:47.024 --> 00:32:47.376 mechanisms.

NOTE Confidence: 0.971482275

00:32:47.380 --> 00:32:49.846 We know that there are alterations

NOTE Confidence: 0.971482275

00:32:49.846 --> 00:32:52.060 in the endocrine stress system,

NOTE Confidence: 0.971482275

00:32:52.060 --> 00:32:54.574 but also a very well replicated

NOTE Confidence: 0.971482275

00:32:54.574 --> 00:32:56.250 finding is increased systemic

NOTE Confidence: 0.971482275

00:32:56.320 --> 00:32:58.752 inflammation in individuals exposed

NOTE Confidence: 0.971482275

00:32:58.752 --> 00:33:00.576 to childhood maltreatment.

NOTE Confidence: 0.971482275

00:33:00.580 --> 00:33:02.806 And what is accumulating more and more

NOTE Confidence: 0.971482275

00:33:02.806 --> 00:33:05.321 is that also the offspring of these

NOTE Confidence: 0.971482275

00:33:05.321 --> 00:33:07.565 mothers who themselves have not been.

NOTE Confidence: 0.971482275

00:33:07.570 --> 00:33:11.007 Victims of abuse also have a higher

NOTE Confidence: 0.971482275

00:33:11.007 --> 00:33:13.340 risk for neurodevelopmental disorders,

NOTE Confidence: 0.971482275

00:33:13.340 --> 00:33:14.254 behavioral problems,

NOTE Confidence: 0.971482275

00:33:14.254 --> 00:33:16.996 but also adverse birth outcomes and.

NOTE Confidence: 0.819153163

00:33:19.550 --> 00:33:21.782 Also obesity, for example,

NOTE Confidence: 0.819153163

00:33:21.782 --> 00:33:27.077 and what we have done in in the ongoing

NOTE Confidence: 0.819153163

00:33:27.077 --> 00:33:31.361 ECHO cohort is because several studies in

NOTE Confidence: 0.819153163

00:33:31.370 --> 00:33:34.142 smaller or larger samples have addressed

NOTE Confidence: 0.819153163

00:33:34.142 --> 00:33:36.582 the association between maternal childhood

NOTE Confidence: 0.819153163

00:33:36.582 --> 00:33:39.217 maltreatment and single health outcomes.

NOTE Confidence: 0.819153163

00:33:39.220 --> 00:33:42.164 And what these studies do not allow to

NOTE Confidence: 0.819153163

00:33:42.164 --> 00:33:45.484 address is what is the potential effect

NOTE Confidence: 0.819153163

00:33:45.484 --> 00:33:47.986 on comorbidity across disorder, so.

NOTE Confidence: 0.819153163

00:33:47.986 --> 00:33:51.458 We took advantage of this echo cohort

NOTE Confidence: 0.819153163

00:33:51.460 --> 00:33:55.636 where we had information on up to 4000

NOTE Confidence: 0.819153163

00:33:55.636 --> 00:33:59.004 Mother child diets and we're about like.

NOTE Confidence: 0.819153163

00:33:59.004 --> 00:34:02.605 A little more than a third of those

NOTE Confidence: 0.819153163

00:34:02.605 --> 00:34:05.294 mothers did report that they had been

NOTE Confidence: 0.819153163

00:34:05.294 --> 00:34:06.770 exposed to childhood maltreatment.

NOTE Confidence: 0.819153163

00:34:06.770 --> 00:34:10.274 And then we looked at these six outcomes,

NOTE Confidence: 0.819153163

00:34:10.280 --> 00:34:13.020 internalizing problems, asthma, obesity,

NOTE Confidence: 0.819153163

00:34:13.020 --> 00:34:16.110 autism spectrum disorders, ADHD analogy.

NOTE Confidence: 0.819153163

00:34:16.110 --> 00:34:19.200 And as you can see here,

NOTE Confidence: 0.819153163

00:34:19.200 --> 00:34:22.300 across many of these disorders,

NOTE Confidence: 0.819153163

00:34:22.300 --> 00:34:24.142 we see a very significant increase

NOTE Confidence: 0.819153163

00:34:24.142 --> 00:34:26.189 in the risk for these disorders

NOTE Confidence: 0.819153163

00:34:26.189 --> 00:34:28.439 in children whose mothers had been

NOTE Confidence: 0.819153163

00:34:28.439 --> 00:34:30.670 exposed to childhood maltreatment.

NOTE Confidence: 0.819153163

00:34:30.670 --> 00:34:32.668 The highest is for internalizing problems,

NOTE Confidence: 0.819153163

00:34:32.670 --> 00:34:36.846 but also for autism spectrum disorders.

NOTE Confidence: 0.819153163

00:34:36.850 --> 00:34:37.986 It's one.

NOTE Confidence: 0.819153163

00:34:37.986 --> 00:34:41.655 It's a 1.7 fold increase and a more

NOTE Confidence: 0.819153163

00:34:41.655 --> 00:34:43.620 than twofold increase for ADHD.

NOTE Confidence: 0.819153163

00:34:43.620 --> 00:34:47.037 And there's also an increase for asthma.

NOTE Confidence: 0.819153163

00:34:47.037 --> 00:34:50.026 We didn't find any association with allergy,

NOTE Confidence: 0.819153163

00:34:50.030 --> 00:34:52.529 and the only outcome where we found

NOTE Confidence: 0.819153163

00:34:52.529 --> 00:34:54.381 an association that was moderated

NOTE Confidence: 0.819153163

00:34:54.381 --> 00:34:55.809 by sex was obesity.

NOTE Confidence: 0.819153163

00:34:55.810 --> 00:34:58.288 So only female offspring whose mothers

NOTE Confidence: 0.819153163

00:34:58.288 --> 00:35:01.579 had been exposed to childhood trauma were.

NOTE Confidence: 0.819153163

00:35:01.580 --> 00:35:05.108 Had a higher risk for obesity and

NOTE Confidence: 0.819153163

00:35:05.108 --> 00:35:07.860 what was really interesting.

NOTE Confidence: 0.819153163

00:35:07.860 --> 00:35:12.434 Is that these mothers, these,

NOTE Confidence: 0.819153163

00:35:12.434 --> 00:35:15.004 these children clustered into different

NOTE Confidence: 0.819153163

00:35:15.004 --> 00:35:18.134 groups and there was one group that

NOTE Confidence: 0.819153163

00:35:18.134 --> 00:35:21.023 you see here who had who had diagnosis

NOTE Confidence: 0.819153163

00:35:21.023 --> 00:35:23.518 on various of these outcomes,

NOTE Confidence: 0.819153163

00:35:23.520 --> 00:35:27.760 especially the neurodevelopmental outcomes.

NOTE Confidence: 0.819153163

00:35:27.760 --> 00:35:28.308 ADHD,

NOTE Confidence: 0.819153163

00:35:28.308 --> 00:35:28.856 LG,

NOTE Confidence: 0.819153163

00:35:28.856 --> 00:35:32.144 but also asthma and also internalizing

NOTE Confidence: 0.819153163

00:35:32.144 --> 00:35:32.692 problems.

NOTE Confidence: 0.819153163

00:35:32.700 --> 00:35:34.954 And mothers of children in this group

NOTE Confidence: 0.819153163

00:35:34.954 --> 00:35:37.922 were twice as likely to have been exposed

NOTE Confidence: 0.819153163

00:35:37.922 --> 00:35:40.282 to childhood maltreatment then in the

NOTE Confidence: 0.819153163

00:35:40.282 --> 00:35:42.830 other lower risk groups with lower health,

NOTE Confidence: 0.819153163

00:35:42.830 --> 00:35:45.518 with the lower prevalence of health outcomes.

NOTE Confidence: 0.819153163

00:35:45.520 --> 00:35:49.000 And then we also did a latent class

NOTE Confidence: 0.819153163

00:35:49.000 --> 00:35:52.085 analysis to to look at whether different

NOTE Confidence: 0.819153163

00:35:52.085 --> 00:35:54.755 types of exposures of maternal childhood

NOTE Confidence: 0.819153163

00:35:54.755 --> 00:35:56.493 maltreatment were associated with

NOTE Confidence: 0.819153163

00:35:56.493 --> 00:35:58.228 specific outcomes and the child.

NOTE Confidence: 0.819153163

00:35:58.230 --> 00:36:00.000 But what our data suggested

NOTE Confidence: 0.819153163

00:36:00.000 --> 00:36:01.770 was that it was rather,

NOTE Confidence: 0.819153163

00:36:01.770 --> 00:36:02.198 um,

NOTE Confidence: 0.819153163

00:36:02.198 --> 00:36:03.910 a matter of severity,

NOTE Confidence: 0.819153163

00:36:03.910 --> 00:36:05.962 because it was those mothers who

NOTE Confidence: 0.819153163

00:36:05.962 --> 00:36:08.461 had been exposed to more than one

NOTE Confidence: 0.819153163

00:36:08.461 --> 00:36:10.591 type of abuse and neglect whose

NOTE Confidence: 0.819153163

00:36:10.591 --> 00:36:13.134 children had the highest risk of

NOTE Confidence: 0.819153163

00:36:13.134 --> 00:36:16.350 developing these disease outcomes.

NOTE Confidence: 0.819153163

00:36:16.350 --> 00:36:18.681 So this paper was just accepted for

NOTE Confidence: 0.819153163

00:36:18.681 --> 00:36:20.747 publication and will be out next week.

NOTE Confidence: 0.819153163

00:36:20.750 --> 00:36:22.910 Umm, it's not yet out.

NOTE Confidence: 0.819153163

00:36:22.910 --> 00:36:28.750 We are working on it. And so I want to.

NOTE Confidence: 0.819153163

00:36:28.750 --> 00:36:29.962 I'll be quick,

NOTE Confidence: 0.819153163

00:36:29.962 --> 00:36:30.770 I will.

NOTE Confidence: 0.819153163

00:36:30.770 --> 00:36:32.732 I will only talk like I try to finish

NOTE Confidence: 0.819153163

00:36:32.732 --> 00:36:34.723 in like 5 minutes and we'll talk a

NOTE Confidence: 0.819153163

00:36:34.723 --> 00:36:37.208 little bit of the Mecca about the mechanisms,

NOTE Confidence: 0.819153163

00:36:37.210 --> 00:36:39.542 what might underlie this

NOTE Confidence: 0.819153163

00:36:39.542 --> 00:36:40.708 intergenerational transmission.

NOTE Confidence: 0.819153163

00:36:40.710 --> 00:36:43.310 And there has been a lot of focus.

NOTE Confidence: 0.819153163

00:36:43.310 --> 00:36:45.466 On post Natal factors,

NOTE Confidence: 0.819153163

00:36:45.466 --> 00:36:48.161 because women exposed to childhood

NOTE Confidence: 0.819153163

00:36:48.161 --> 00:36:50.762 maltreatment have a higher risk

NOTE Confidence: 0.819153163

00:36:50.762 --> 00:36:52.247 for postpartum depression,

NOTE Confidence: 0.819153163

00:36:52.250 --> 00:36:56.366 they have more often bonding difficulties.

NOTE Confidence: 0.819153163

00:36:56.370 --> 00:36:58.990 They're like impaired maternal,

NOTE Confidence: 0.819153163

00:36:58.990 --> 00:37:00.300 maternal sensitivity,

NOTE Confidence: 0.819153163

00:37:00.300 --> 00:37:03.184 which of course are all risk factors

NOTE Confidence: 0.819153163

00:37:03.184 --> 00:37:05.618 for later pathology and the child.

NOTE Confidence: 0.819153163

00:37:05.618 --> 00:37:08.030 But the case we wanted to

NOTE Confidence: 0.85448829

00:37:08.116 --> 00:37:11.720 make is. And that's because of all

NOTE Confidence: 0.85448829

00:37:11.720 --> 00:37:14.680 the evidence for altered stress

NOTE Confidence: 0.85448829

00:37:14.792 --> 00:37:17.176 biology in the exposed individual.

NOTE Confidence: 0.85448829

00:37:17.176 --> 00:37:18.418 After childhood maltreatment,

NOTE Confidence: 0.85448829

00:37:18.420 --> 00:37:20.050 they will most likely carry

NOTE Confidence: 0.85448829

00:37:20.050 --> 00:37:21.354 those forward to pregnancy.

NOTE Confidence: 0.85448829

00:37:21.360 --> 00:37:23.496 It will not stop once they become pregnant.

NOTE Confidence: 0.85448829

00:37:23.500 --> 00:37:25.201 And I have just shown you that

NOTE Confidence: 0.85448829

00:37:25.201 --> 00:37:27.424 there's a lot of evidence that like

NOTE Confidence: 0.85448829

00:37:27.424 --> 00:37:29.219 variation in these biological mediators

NOTE Confidence: 0.85448829

00:37:29.219 --> 00:37:31.237 can then program the fetal brain.

NOTE Confidence: 0.85448829

00:37:31.240 --> 00:37:33.904 And this is what we're trying

NOTE Confidence: 0.85448829

00:37:33.904 --> 00:37:35.236 what we've tried.

NOTE Confidence: 0.85448829

00:37:35.240 --> 00:37:38.089 To summarize in this review and also

NOTE Confidence: 0.85448829

00:37:38.089 --> 00:37:40.386 recent another recent review how

NOTE Confidence: 0.85448829

00:37:40.386 --> 00:37:42.881 the various sequelae of maternal

NOTE Confidence: 0.85448829

00:37:42.881 --> 00:37:45.321 childhood maltreatment that you see

NOTE Confidence: 0.85448829

00:37:45.321 --> 00:37:47.496 here will affect the biological

NOTE Confidence: 0.85448829

00:37:47.496 --> 00:37:50.406 state during pregnancy and can can

NOTE Confidence: 0.85448829

00:37:50.406 --> 00:37:52.534 affect fetal brain development

NOTE Confidence: 0.85448829

00:37:52.540 --> 00:37:56.310 and even the maternal behavior.

NOTE Confidence: 0.85448829

00:37:56.310 --> 00:37:58.776 The post Natal environment that is

NOTE Confidence: 0.85448829

00:37:58.776 --> 00:38:01.427 being created by that will most

NOTE Confidence: 0.85448829

00:38:01.427 --> 00:38:04.205 likely be affected by stress biology

NOTE Confidence: 0.85448829

00:38:04.205 --> 00:38:06.090 during pregnancy and this is.

NOTE Confidence: 0.85448829

00:38:06.090 --> 00:38:06.764 Something else,

NOTE Confidence: 0.85448829

00:38:06.764 --> 00:38:09.123 uh Kieran and I are working on

NOTE Confidence: 0.85448829

00:38:09.123 --> 00:38:11.367 together whether there could be

NOTE Confidence: 0.85448829

00:38:11.367 --> 00:38:13.207 differences in estrogen sensitivity

NOTE Confidence: 0.85448829

00:38:13.207 --> 00:38:15.368 potentially that will maybe reduce

NOTE Confidence: 0.85448829

00:38:15.368 --> 00:38:16.936 estrogen sensitivity in these

NOTE Confidence: 0.85448829

00:38:16.936 --> 00:38:19.323 mothers who have been exposed to

NOTE Confidence: 0.85448829

00:38:19.323 --> 00:38:20.927 childhood maltreatment that might

NOTE Confidence: 0.85448829

00:38:20.927 --> 00:38:23.497 not allow her brain to adapt to

NOTE Confidence: 0.85448829

00:38:23.497 --> 00:38:25.447 this new situation to prepare for

NOTE Confidence: 0.85448829

00:38:25.510 --> 00:38:28.186 motherhood as well as in individuals

NOTE Confidence: 0.85448829

00:38:28.186 --> 00:38:29.970 with higher estrogen sensitivity.

NOTE Confidence: 0.85448829

00:38:29.970 --> 00:38:33.078 At least this is a working hypothesis

NOTE Confidence: 0.85448829

00:38:33.078 --> 00:38:36.804 that we are examining right now.

NOTE Confidence: 0.85448829

00:38:36.804 --> 00:38:41.592 Umm here's an overview of various

NOTE Confidence: 0.85448829

00:38:41.600 --> 00:38:43.421 associations between maternal

NOTE Confidence: 0.85448829

00:38:43.421 --> 00:38:45.849 childhood maltreatment and variation

NOTE Confidence: 0.85448829

00:38:45.849 --> 00:38:48.980 in stress biology during pregnancy.

NOTE Confidence: 0.85448829

00:38:48.980 --> 00:38:51.710 And so this is what we have

NOTE Confidence: 0.85448829

00:38:51.710 --> 00:38:53.400 contributed to as well.

NOTE Confidence: 0.85448829

00:38:53.400 --> 00:38:54.210 And indeed,

NOTE Confidence: 0.85448829

00:38:54.210 --> 00:38:56.640 there is evidence for higher cortisol

NOTE Confidence: 0.85448829

00:38:56.640 --> 00:38:58.080 concentrations during pregnancy,

NOTE Confidence: 0.85448829

00:38:58.080 --> 00:39:00.900 higher inflammation,

NOTE Confidence: 0.85448829

00:39:00.900 --> 00:39:02.455 steeper increase in this placental

NOTE Confidence: 0.85448829

00:39:02.455 --> 00:39:04.620 CRH over the course of gestation,

NOTE Confidence: 0.85448829

00:39:04.620 --> 00:39:06.428 but also other important.

NOTE Confidence: 0.85448829

00:39:06.428 --> 00:39:06.880 Andrew,

NOTE Confidence: 0.85448829

00:39:06.880 --> 00:39:08.432 current mediators like thyroid

NOTE Confidence: 0.85448829

00:39:08.432 --> 00:39:10.372 hormones that are very important

NOTE Confidence: 0.85448829

00:39:10.372 --> 00:39:12.697 for fetal brain development seem

NOTE Confidence: 0.85448829

00:39:12.697 --> 00:39:15.382 to be associated with higher

NOTE Confidence: 0.85448829

00:39:15.382 --> 00:39:16.993 maternal childhood maltreatment.

NOTE Confidence: 0.85448829

00:39:17.000 --> 00:39:19.456 And to to really make the case that

NOTE Confidence: 0.85448829

00:39:19.456 --> 00:39:20.943 the transmission already occurs

NOTE Confidence: 0.85448829

00:39:20.943 --> 00:39:23.379 prenatally and not just pro postnatally.

NOTE Confidence: 0.85448829

00:39:23.380 --> 00:39:25.780 We wanted to show that already in the

NOTE Confidence: 0.85448829

00:39:25.780 --> 00:39:27.632 neonatal brain we see associations

NOTE Confidence: 0.85448829

00:39:27.632 --> 00:39:29.224 with maternal childhood maltreatment

NOTE Confidence: 0.85448829

00:39:29.224 --> 00:39:31.398 and this was indeed the case.

NOTE Confidence: 0.85448829

00:39:31.400 --> 00:39:34.040 We saw that neonates newborns whose

NOTE Confidence: 0.85448829

00:39:34.040 --> 00:39:36.620 mothers were exposed to childhood.

NOTE Confidence: 0.85448829

00:39:36.620 --> 00:39:38.380 Treatment had actually overall

NOTE Confidence: 0.85448829

00:39:38.380 --> 00:39:40.580 smaller brain volumes and very

NOTE Confidence: 0.85448829

00:39:40.580 --> 00:39:42.627 specifically lower Gray matter volumes.

NOTE Confidence: 0.85448829

00:39:42.630 --> 00:39:44.590 When we looked at whether this was

NOTE Confidence: 0.85448829

00:39:44.590 --> 00:39:46.448 regional specific or more global effect,

NOTE Confidence: 0.85448829

00:39:46.450 --> 00:39:49.357 we really saw it was more of a global

NOTE Confidence: 0.85448829

00:39:49.357 --> 00:39:51.448 effect globally smaller brain.

NOTE Confidence: 0.85448829

00:39:51.450 --> 00:39:52.980 In these newborns whose mothers had

NOTE Confidence: 0.85448829

00:39:52.980 --> 00:39:54.590 been exposed to childhood maltreatment,

NOTE Confidence: 0.85448829

00:39:54.590 --> 00:39:57.248 so really making the point that

NOTE Confidence: 0.85448829

00:39:57.248 --> 00:39:59.533 it's then probably something like

NOTE Confidence: 0.85448829

00:39:59.533 --> 00:40:01.713 the post Natal environment that

NOTE Confidence: 0.85448829

00:40:01.713 --> 00:40:04.097 might also be affected will add

NOTE Confidence: 0.85448829

00:40:04.097 --> 00:40:07.330 on top of this this early already

NOTE Confidence: 0.85448829

00:40:07.330 --> 00:40:09.430 prenatally programmed phenotype.

NOTE Confidence: 0.85448829

00:40:09.430 --> 00:40:12.022 And we were interested in whether

NOTE Confidence: 0.85448829

00:40:12.022 --> 00:40:14.428 total brain volume and newborns

NOTE Confidence: 0.85448829

00:40:14.428 --> 00:40:16.804 was associated with cognitive

NOTE Confidence: 0.85448829

00:40:16.804 --> 00:40:19.180 performance and executive function

NOTE Confidence: 0.85448829

00:40:19.180 --> 00:40:22.098 and did not find any main effect.

NOTE Confidence: 0.85448829

00:40:22.100 --> 00:40:24.340 Um in two years and 4 1/2 years.

NOTE Confidence: 0.85448829

00:40:24.340 --> 00:40:25.234 But again,

NOTE Confidence: 0.85448829

00:40:25.234 --> 00:40:27.469 we saw a really interesting

NOTE Confidence: 0.85448829

00:40:27.469 --> 00:40:29.361 moderation by maternal sensitivity

NOTE Confidence: 0.85448829

00:40:29.361 --> 00:40:32.217 that we observed in a standardized

NOTE Confidence: 0.85448829

00:40:32.217 --> 00:40:34.528 place situation in a way that.

NOTE Confidence: 0.85448829

00:40:34.530 --> 00:40:37.310 Infants with larger brain volumes,

NOTE Confidence: 0.85448829

00:40:37.310 --> 00:40:39.725 we are more able to benefit and

NOTE Confidence: 0.85448829

00:40:39.725 --> 00:40:42.114 be affected by variation in

NOTE Confidence: 0.85448829

00:40:42.114 --> 00:40:43.390 maternal sensitivity,

NOTE Confidence: 0.879788

00:40:43.390 --> 00:40:45.975 whereas this was reduced

NOTE Confidence: 0.879788

00:40:45.975 --> 00:40:47.250 and individuals who are born

NOTE Confidence: 0.879788

00:40:47.250 --> 00:40:48.849 with a smaller brain volume,

NOTE Confidence: 0.879788

00:40:48.850 --> 00:40:50.761 and this was the case at two

NOTE Confidence: 0.879788

00:40:50.761 --> 00:40:52.602 years and also a very similar

NOTE Confidence: 0.879788

00:40:52.602 --> 00:40:54.510 pattern at four to five years.

NOTE Confidence: 0.793007416111111

00:40:56.860 --> 00:40:58.695 So potentially we want brain

NOTE Confidence: 0.793007416111111

00:40:58.695 --> 00:41:01.219 volume could be in Europe phenotype

NOTE Confidence: 0.793007416111111

00:41:01.219 --> 00:41:03.058 that indicates differential

NOTE Confidence: 0.793007416111111

00:41:03.058 --> 00:41:05.510 susceptibility to the environment.

NOTE Confidence: 0.793007416111111

00:41:05.510 --> 00:41:08.000 Umm. And this is something else

NOTE Confidence: 0.793007416111111

00:41:08.000 --> 00:41:10.599 we have recently been working on.

NOTE Confidence: 0.793007416111111

00:41:10.600 --> 00:41:14.250 This is diffusion tensor imaging

NOTE Confidence: 0.793007416111111

00:41:14.250 --> 00:41:18.996 data of our new cohorts that we

NOTE Confidence: 0.793007416111111

00:41:18.996 --> 00:41:21.736 recently that we recently established.

NOTE Confidence: 0.793007416111111

00:41:21.740 --> 00:41:26.180 And here what we see is that it

NOTE Confidence: 0.793007416111111

00:41:26.180 --> 00:41:29.190 seems so we look at diffusion tensor

NOTE Confidence: 0.793007416111111

00:41:29.190 --> 00:41:32.626 imaging and we look at this measure

NOTE Confidence: 0.793007416111111

00:41:32.626 --> 00:41:34.574 radial diffusivity where higher

NOTE Confidence: 0.793007416111111

00:41:34.666 --> 00:41:37.230 scores indicate lower maturity.

NOTE Confidence: 0.793007416111111

00:41:37.230 --> 00:41:39.420 And, um, we see that different

NOTE Confidence: 0.793007416111111

00:41:39.420 --> 00:41:41.862 forms of depression seem to be

NOTE Confidence: 0.793007416111111

00:41:41.862 --> 00:41:43.678 associated with different patterns.

NOTE Confidence: 0.793007416111111

00:41:43.680 --> 00:41:46.260 So depression depressed mothers who had

NOTE Confidence: 0.793007416111111

00:41:46.260 --> 00:41:48.910 been exposed to childhood maltreatment,

NOTE Confidence: 0.793007416111111

00:41:48.910 --> 00:41:51.969 their children at birth seem to have

NOTE Confidence: 0.793007416111111

00:41:51.969 --> 00:41:54.662 have a phenotype of delayed maturation,

NOTE Confidence: 0.793007416111111

00:41:54.662 --> 00:41:58.058 whereas those newborns whose mothers had

NOTE Confidence: 0.793007416111111

00:41:58.058 --> 00:42:01.288 been exposed to childhood maltreatment.

NOTE Confidence: 0.793007416111111

00:42:01.290 --> 00:42:04.890 But we're not exposed shelter maltreatment,

NOTE Confidence: 0.793007416111111

00:42:04.890 --> 00:42:05.257 sorry.

NOTE Confidence: 0.793007416111111

00:42:05.257 --> 00:42:07.459 And we're depressed during pregnancy rather.

NOTE Confidence: 0.793007416111111

00:42:07.460 --> 00:42:09.602 Go to pattern of accelerated maturation

NOTE Confidence: 0.793007416111111

00:42:09.602 --> 00:42:12.526 and I think this is this is interesting

NOTE Confidence: 0.793007416111111

00:42:12.526 --> 00:42:14.668 because we know that both delayed

NOTE Confidence: 0.793007416111111

00:42:14.735 --> 00:42:16.775 maturation but also accelerated

NOTE Confidence: 0.793007416111111

00:42:16.775 --> 00:42:19.325 maturation might have negative outcomes.

NOTE Confidence: 0.793007416111111

00:42:19.330 --> 00:42:22.010 So I think it is really important to

NOTE Confidence: 0.793007416111111

00:42:22.010 --> 00:42:24.088 consider both ends of the spectrum

NOTE Confidence: 0.793007416111111

00:42:24.088 --> 00:42:26.594 and that's why I thought this was

NOTE Confidence: 0.793007416111111

00:42:26.594 --> 00:42:29.935 actually a quite interesting finding.

NOTE Confidence: 0.793007416111111

00:42:29.935 --> 00:42:31.560 Umm.

NOTE Confidence: 0.793007416111111

00:42:31.560 --> 00:42:34.276 So this is just in terms of

NOTE Confidence: 0.793007416111111

00:42:34.276 --> 00:42:35.052 clinical application,

NOTE Confidence: 0.793007416111111

00:42:35.060 --> 00:42:37.745 this is something we've developed

NOTE Confidence: 0.793007416111111

00:42:37.745 --> 00:42:39.835 with my colleagues Christina,

NOTE Confidence: 0.793007416111111

00:42:39.835 --> 00:42:42.685 Hayem and Azania entering at the

NOTE Confidence: 0.793007416111111

00:42:42.685 --> 00:42:46.061 charity this kind of the cycle of

NOTE Confidence: 0.793007416111111

00:42:46.061 --> 00:42:49.730 biological embedding of child of

NOTE Confidence: 0.793007416111111

00:42:49.730 --> 00:42:53.370 adverse childhood experiences and.

NOTE Confidence: 0.793007416111111

00:42:53.370 --> 00:42:56.436 And also where potential targets could

NOTE Confidence: 0.793007416111111

00:42:56.436 --> 00:42:59.448 be for intervention to break the

NOTE Confidence: 0.793007416111111

00:42:59.448 --> 00:43:02.516 cycle after exposure to not even like

NOTE Confidence: 0.793007416111111

00:43:02.516 --> 00:43:04.646 to prevent the biological embedding.

NOTE Confidence: 0.793007416111111

00:43:04.650 --> 00:43:06.070 But if it has embedded,

NOTE Confidence: 0.793007416111111

00:43:06.070 --> 00:43:07.708 if it has already been embedded,

NOTE Confidence: 0.793007416111111

00:43:07.710 --> 00:43:10.404 is there a potential for reprogramming

NOTE Confidence: 0.793007416111111

00:43:10.404 --> 00:43:13.302 for compensation so that not like

NOTE Confidence: 0.793007416111111

00:43:13.302 --> 00:43:15.772 certain phenotypes get established but

NOTE Confidence: 0.793007416111111

00:43:15.772 --> 00:43:19.570 then I think what we can do in like

NOTE Confidence: 0.793007416111111

00:43:19.688 --> 00:43:23.699 caring natural care is really try to.

NOTE Confidence: 0.793007416111111

00:43:23.700 --> 00:43:24.564 Work here.

NOTE Confidence: 0.793007416111111

00:43:24.564 --> 00:43:26.724 Work on disrupting this vicious

NOTE Confidence: 0.793007416111111

00:43:26.724 --> 00:43:28.728 cycle of the intergenerational

NOTE Confidence: 0.793007416111111

00:43:28.728 --> 00:43:31.868 transmission by really trying to

NOTE Confidence: 0.793007416111111

00:43:31.868 --> 00:43:35.790 focus or identify women at risk.

NOTE Confidence: 0.793007416111111

00:43:35.790 --> 00:43:38.913 And and see how to support women who have

NOTE Confidence: 0.793007416111111

00:43:38.913 --> 00:43:41.909 been exposed to childhood maltreatment,

NOTE Confidence: 0.793007416111111

00:43:41.910 --> 00:43:44.380 and ideally already during the

NOTE Confidence: 0.793007416111111

00:43:44.380 --> 00:43:46.850 preconceptional period or during pregnancy.

NOTE Confidence: 0.793007416111111

00:43:46.850 --> 00:43:49.310 But then of course also providing

NOTE Confidence: 0.793007416111111

00:43:49.310 --> 00:43:51.510 support in the postpartum period.

NOTE Confidence: 0.793007416111111

00:43:51.510 --> 00:43:52.509 But as always,

NOTE Confidence: 0.793007416111111

00:43:52.509 --> 00:43:54.840 of course the the earlier the better.

NOTE Confidence: 0.93819795

00:43:57.060 --> 00:43:59.948 I'd like to just.

NOTE Confidence: 0.93819795

00:43:59.950 --> 00:44:01.198 Finished with this quote,

NOTE Confidence: 0.93819795

00:44:01.198 --> 00:44:03.070 it is easier to build strong

NOTE Confidence: 0.93819795

00:44:03.136 --> 00:44:04.986 children than repair broken men,

NOTE Confidence: 0.93819795

00:44:04.990 --> 00:44:09.142 so I think it is really important to

NOTE Confidence: 0.93819795

00:44:09.142 --> 00:44:12.517 understand the very early origins of.

NOTE Confidence: 0.93819795

00:44:12.520 --> 00:44:16.695 Susceptibility for mental health or

NOTE Confidence: 0.93819795

00:44:16.695 --> 00:44:20.035 adverse mental health conditions.

NOTE Confidence: 0.872226260666667

00:44:22.110 --> 00:44:24.220 Because we can take advantage

NOTE Confidence: 0.872226260666667

00:44:24.220 --> 00:44:26.897 of the great plasticity of the

NOTE Confidence: 0.872226260666667

00:44:26.897 --> 00:44:29.333 brain during development and yeah,

NOTE Confidence: 0.872226260666667

00:44:29.333 --> 00:44:32.464 and deliver targeted interventions to, yeah,

NOTE Confidence: 0.872226260666667

00:44:32.464 --> 00:44:36.148 take advantage of this high plasticity.

NOTE Confidence: 0.872226260666667

00:44:36.150 --> 00:44:40.206 I would like to close by of course.

NOTE Confidence: 0.872226260666667

00:44:40.210 --> 00:44:44.298 Thanking all my collaborators.

NOTE Confidence: 0.872226260666667

00:44:44.300 --> 00:44:46.916 Without whom, I couldn't have done this work,

NOTE Confidence: 0.872226260666667

00:44:46.920 --> 00:44:48.888 and I'd also like you for your attention.

NOTE Confidence: 0.759863286666667

00:45:00.350 --> 00:45:01.418 Thanks so much. Talk to us.

NOTE Confidence: 0.759863286666667

00:45:01.420 --> 00:45:02.680 Any questions for Doctor

NOTE Confidence: 0.759863286666667

00:45:02.680 --> 00:45:03.940 bus in the audience?

NOTE Confidence: 0.88473773

00:45:06.600 --> 00:45:08.950 We do have one question already and

NOTE Confidence: 0.88473773

00:45:08.950 --> 00:45:11.475 from zoom and if Lilia Benoit would

NOTE Confidence: 0.88473773

00:45:11.475 --> 00:45:14.072 like to to unmute maybe start your

NOTE Confidence: 0.88473773

00:45:14.072 --> 00:45:16.380 video and always interesting to discuss

NOTE Confidence: 0.88473773

00:45:16.380 --> 00:45:18.252 individual differences and potential

NOTE Confidence: 0.88473773

00:45:18.252 --> 00:45:20.070 moderating influences and Lilia, do you

NOTE Confidence: 0.808874398

00:45:20.080 --> 00:45:23.130 want to pose your question? Yes.

NOTE Confidence: 0.808874398

00:45:23.130 --> 00:45:25.738 Hi. Can you hear me? Yes, yes.

NOTE Confidence: 0.917291892222222

00:45:25.910 --> 00:45:28.142 OK. Thank you very much for for this talk.

NOTE Confidence: 0.917291892222222

00:45:28.150 --> 00:45:30.098 It's very, very interesting.

NOTE Confidence: 0.917291892222222

00:45:30.098 --> 00:45:34.970 And I'm not an expert at all in methylation.

NOTE Confidence: 0.917291892222222

00:45:34.970 --> 00:45:37.258 I'm Shawna Dawson, psychiatrist.

NOTE Confidence: 0.917291892222222

00:45:37.258 --> 00:45:41.550 But I'm more interested usually in behavior,

NOTE Confidence: 0.917291892222222

00:45:41.550 --> 00:45:44.678 family therapy, communication.

NOTE Confidence: 0.917291892222222

00:45:44.678 --> 00:45:48.446 And so it's always very unsettling

NOTE Confidence: 0.917291892222222

00:45:48.450 --> 00:45:50.493 for me because I have the

NOTE Confidence: 0.917291892222222

00:45:50.493 --> 00:45:52.017 impression that sometime sometimes.

NOTE Confidence: 0.917291892222222

00:45:52.020 --> 00:45:54.486 When we measure the outcome of

NOTE Confidence: 0.917291892222222

00:45:54.486 --> 00:45:56.130 the adverse childhood experiences,

NOTE Confidence: 0.917291892222222

00:45:56.130 --> 00:46:00.369 I do not see how we can measure the

NOTE Confidence: 0.917291892222222

00:46:00.369 --> 00:46:03.098 moderating effects of behaviors.

NOTE Confidence: 0.917291892222222

00:46:03.100 --> 00:46:06.404 And and the role model effect on the

NOTE Confidence: 0.917291892222222

00:46:06.404 --> 00:46:08.660 parent behavior toward the child.

NOTE Confidence: 0.917291892222222

00:46:08.660 --> 00:46:11.800 And so even maybe I'm just very biased

NOTE Confidence: 0.917291892222222

00:46:11.800 --> 00:46:14.176 because it's an area I don't know much about.

NOTE Confidence: 0.917291892222222

00:46:14.180 --> 00:46:16.706 But when I read sometimes obesity,

NOTE Confidence: 0.917291892222222

00:46:16.710 --> 00:46:18.126 ADHD, depression, inflammation,

NOTE Confidence: 0.917291892222222

00:46:18.126 --> 00:46:20.486 my impression is that all

NOTE Confidence: 0.917291892222222

00:46:20.486 --> 00:46:23.070 of these outcomes could be,

NOTE Confidence: 0.917291892222222

00:46:23.070 --> 00:46:25.190 might be directly transmitted

NOTE Confidence: 0.917291892222222

00:46:25.190 --> 00:46:28.000 just through behaviors like the

NOTE Confidence: 0.917291892222222

00:46:28.000 --> 00:46:30.160 maternal behavior towards herself.

NOTE Confidence: 0.917291892222222

00:46:30.160 --> 00:46:32.566 I don't know, using drugs.

NOTE Confidence: 0.917291892222222

00:46:32.566 --> 00:46:33.472 Being addictions,

NOTE Confidence: 0.917291892222222

00:46:33.472 --> 00:46:35.737 feeling depressed or the parental

NOTE Confidence: 0.917291892222222

00:46:35.737 --> 00:46:37.249 behavior towards a child,

NOTE Confidence: 0.917291892222222

00:46:37.250 --> 00:46:39.150 which is like repeating this

NOTE Confidence: 0.917291892222222

00:46:39.150 --> 00:46:40.290 circle of trauma.

NOTE Confidence: 0.917291892222222

00:46:40.290 --> 00:46:43.341 And so it's very puzzling

NOTE Confidence: 0.917291892222222

00:46:43.341 --> 00:46:44.763 for me because I'm just like,

NOTE Confidence: 0.917291892222222

00:46:44.770 --> 00:46:46.400 how I can, how can we measure,

NOTE Confidence: 0.917291892222222

00:46:46.400 --> 00:46:48.465 you know, or how could we compare,

NOTE Confidence: 0.917291892222222

00:46:48.470 --> 00:46:52.936 should we go back to very biological?

NOTE Confidence: 0.917291892222222

00:46:52.940 --> 00:46:54.286 Causation or.

NOTE Confidence: 0.917291892222222

00:46:54.286 --> 00:46:55.616 Or could we just say,

NOTE Confidence: 0.917291892222222

00:46:55.620 --> 00:46:55.893 oh,

NOTE Confidence: 0.917291892222222

00:46:55.893 --> 00:46:57.804 maybe it's just the behavior of being

NOTE Confidence: 0.917291892222222

00:46:57.804 --> 00:46:59.359 transmitted and we are actually

NOTE Confidence: 0.917291892222222

00:46:59.359 --> 00:47:02.360 measuring something else which is a.

NOTE Confidence: 0.917291892222222

00:47:02.360 --> 00:47:05.745 And the body signals of it.

NOTE Confidence: 0.917291892222222

00:47:05.745 --> 00:47:07.380 But actually this is not really

NOTE Confidence: 0.917291892222222

00:47:07.380 --> 00:47:08.660 the cause of transmission.

NOTE Confidence: 0.917291892222222

00:47:08.660 --> 00:47:10.136 I don't know if it's clear.

NOTE Confidence: 0.917291892222222

00:47:10.140 --> 00:47:10.430 I

NOTE Confidence: 0.868587637692308

00:47:10.440 --> 00:47:11.812 I think it is clear and I

NOTE Confidence: 0.868587637692308

00:47:11.812 --> 00:47:13.058 don't think it's an either or.

NOTE Confidence: 0.868587637692308

00:47:13.060 --> 00:47:15.448 I think the behavior that is

NOTE Confidence: 0.868587637692308

00:47:15.448 --> 00:47:17.749 altered in response to these

NOTE Confidence: 0.868587637692308

00:47:17.749 --> 00:47:20.249 adverse experiences will actually.

NOTE Confidence: 0.868587637692308

00:47:20.250 --> 00:47:23.148 Moderate or affect how much her

NOTE Confidence: 0.868587637692308

00:47:23.148 --> 00:47:25.968 biology is changed in response

NOTE Confidence: 0.868587637692308

00:47:25.968 --> 00:47:28.359 to childhood maltreatment.

NOTE Confidence: 0.868587637692308

00:47:28.360 --> 00:47:30.248 This is why I had this one figure.

NOTE Confidence: 0.868587637692308

00:47:30.250 --> 00:47:32.842 Sorry, I went through it very quickly with

NOTE Confidence: 0.868587637692308

00:47:32.842 --> 00:47:35.169 these various sequelae like drug exposure,

NOTE Confidence: 0.868587637692308

00:47:35.170 --> 00:47:38.000 like obesity, other risky behavior,

NOTE Confidence: 0.868587637692308

00:47:38.000 --> 00:47:39.910 but also her mental health.

NOTE Confidence: 0.868587637692308

00:47:39.910 --> 00:47:42.332 And it is indeed the case that

NOTE Confidence: 0.868587637692308

00:47:42.332 --> 00:47:44.869 the more risk factors they have.

NOTE Confidence: 0.868587637692308

00:47:44.870 --> 00:47:47.790 The higher or the the the the more

NOTE Confidence: 0.868587637692308

00:47:47.790 --> 00:47:50.227 pronounced are the differences in

NOTE Confidence: 0.868587637692308

00:47:50.227 --> 00:47:52.018 biological markers during pregnancy.

NOTE Confidence: 0.868587637692308

00:47:52.018 --> 00:47:52.850 For example,

NOTE Confidence: 0.868587637692308

00:47:52.850 --> 00:47:54.050 I don't think I mentioned that,

NOTE Confidence: 0.868587637692308

00:47:54.050 --> 00:47:56.661 but in our studies when we have

NOTE Confidence: 0.868587637692308

00:47:56.661 --> 00:47:58.349 looked at inflammatory markers

NOTE Confidence: 0.868587637692308

00:47:58.349 --> 00:48:01.331 during pregnancy in women who had

NOTE Confidence: 0.868587637692308

00:48:01.331 --> 00:48:02.822 adverse childhood experiences,

NOTE Confidence: 0.868587637692308

00:48:02.830 --> 00:48:05.140 we see it only elevated in those

NOTE Confidence: 0.868587637692308

00:48:05.140 --> 00:48:07.379 women who have also depressive

NOTE Confidence: 0.868587637692308

00:48:07.379 --> 00:48:09.146 symptoms during pregnancy.

NOTE Confidence: 0.868587637692308

00:48:09.150 --> 00:48:11.635 So I think these like what has

NOTE Confidence: 0.868587637692308

00:48:11.635 --> 00:48:13.690 established as a consequence,

NOTE Confidence: 0.868587637692308

00:48:13.690 --> 00:48:14.630 sorry, I'm looking at you,

NOTE Confidence: 0.868587637692308

00:48:14.630 --> 00:48:16.940 but I should be looking there.

NOTE Confidence: 0.868587637692308

00:48:16.940 --> 00:48:19.586 What has been established in terms of

NOTE Confidence: 0.868587637692308

00:48:19.586 --> 00:48:21.946 sequella of these adverse experiences

NOTE Confidence: 0.868587637692308

00:48:21.946 --> 00:48:24.831 are extremely important and these

NOTE Confidence: 0.868587637692308

00:48:24.831 --> 00:48:27.120 include behavioral alterations because

NOTE Confidence: 0.868587637692308

00:48:27.120 --> 00:48:29.455 because if certain phenotypes like

NOTE Confidence: 0.868587637692308

00:48:29.455 --> 00:48:31.323 depression has been established,

NOTE Confidence: 0.868587637692308

00:48:31.330 --> 00:48:33.385 this will affect her behavior

NOTE Confidence: 0.868587637692308

00:48:33.385 --> 00:48:35.440 towards her child most likely.

NOTE Confidence: 0.868587637692308

00:48:35.440 --> 00:48:37.645 And I think This is why it is so

NOTE Confidence: 0.868587637692308

00:48:37.645 --> 00:48:39.766 important that we identify these women

NOTE Confidence: 0.868587637692308

00:48:39.766 --> 00:48:41.576 because we cannot change anything

NOTE Confidence: 0.868587637692308

00:48:41.642 --> 00:48:43.568 about these experiences that the the

NOTE Confidence: 0.868587637692308

00:48:43.568 --> 00:48:45.764 the mothers or the parents made.

NOTE Confidence: 0.868587637692308

00:48:45.764 --> 00:48:49.376 But we can of course try to positively

NOTE Confidence: 0.868587637692308

00:48:49.376 --> 00:48:51.606 affect some of these sequella,

NOTE Confidence: 0.868587637692308

00:48:51.610 --> 00:48:54.420 and I think this will already this

NOTE Confidence: 0.868587637692308

00:48:54.420 --> 00:48:55.770 will already be very effective.

NOTE Confidence: 0.94882286

00:48:58.420 --> 00:49:02.190 Sorry. Thank you.

NOTE Confidence: 0.94882286

00:49:02.190 --> 00:49:03.350 That was really fascinating.

NOTE Confidence: 0.94882286

00:49:03.350 --> 00:49:04.318 Thank you so much.

NOTE Confidence: 0.94882286

00:49:04.318 --> 00:49:07.063 I I was wondering about your comment

NOTE Confidence: 0.94882286

00:49:07.063 --> 00:49:10.018 about girls only being affected.

NOTE Confidence: 0.94882286

00:49:10.020 --> 00:49:11.660 With obesity of girls,

NOTE Confidence: 0.94882286

00:49:11.660 --> 00:49:13.371 of these moms, what, what,

NOTE Confidence: 0.94882286

00:49:13.371 --> 00:49:14.918 what sense do you make of that?

NOTE Confidence: 0.7903324475

00:49:17.970 --> 00:49:22.690 That that is difficult. I don't think

NOTE Confidence: 0.7903324475

00:49:22.690 --> 00:49:25.560 we really know why this might be.

NOTE Confidence: 0.7903324475

00:49:25.560 --> 00:49:28.206 It is interesting that also in exposed

NOTE Confidence: 0.7903324475

00:49:28.206 --> 00:49:30.867 individuals it seems like that obesity risk

NOTE Confidence: 0.7903324475

00:49:30.867 --> 00:49:33.510 is higher and exposed females than males.

NOTE Confidence: 0.7903324475

00:49:33.510 --> 00:49:35.860 Umm. I really don't know.

NOTE Confidence: 0.7903324475

00:49:35.860 --> 00:49:37.939 We have a good sense of this.

NOTE Confidence: 0.7903324475

00:49:37.940 --> 00:49:40.488 I thought it was really interesting that

NOTE Confidence: 0.7903324475

00:49:40.488 --> 00:49:43.854 this was the only outcome that we saw

NOTE Confidence: 0.7903324475

00:49:43.854 --> 00:49:47.800 differential effects based on offspring sex.

NOTE Confidence: 0.7903324475

00:49:47.800 --> 00:49:49.078 But I actually have to pass.

NOTE Confidence: 0.7903324475

00:49:49.080 --> 00:49:50.190 I don't have a good idea.

NOTE Confidence: 0.7903324475

00:49:50.190 --> 00:49:53.690 I can, I can say that it has been similar

NOTE Confidence: 0.7903324475

00:49:53.776 --> 00:49:56.576 things have been shown in the in the

NOTE Confidence: 0.7903324475

00:49:56.576 --> 00:50:00.009 as I said in the exposed person but.

NOTE Confidence: 0.7903324475

00:50:00.010 --> 00:50:01.078 Yeah, we don't know.

NOTE Confidence: 0.7903324475

00:50:01.078 --> 00:50:03.065 I think this is something to really

NOTE Confidence: 0.7903324475

00:50:03.065 --> 00:50:05.027 something to really look look into.

NOTE Confidence: 0.7903324475

00:50:05.030 --> 00:50:08.354 And I have to say that the

NOTE Confidence: 0.7903324475

00:50:08.354 --> 00:50:09.490 few studies there are,

NOTE Confidence: 0.7903324475

00:50:09.490 --> 00:50:11.800 they haven't always looked at sex

NOTE Confidence: 0.7903324475

00:50:11.800 --> 00:50:13.830 differences and moderation by by sex.

NOTE Confidence: 0.7903324475

00:50:13.830 --> 00:50:16.790 So I think we will have to see

NOTE Confidence: 0.7903324475

00:50:16.790 --> 00:50:18.475 whether this this gets replicated

NOTE Confidence: 0.7903324475

00:50:18.475 --> 00:50:20.680 and try to make sense of this.

NOTE Confidence: 0.793746311666667

00:50:21.860 --> 00:50:23.750 Thank you so much. Go catch. One

NOTE Confidence: 0.844993146666667

00:50:23.760 --> 00:50:24.648 last quick question.

NOTE Confidence: 0.7962833825

00:50:27.640 --> 00:50:28.650 Yeah, amazing.

NOTE Confidence: 0.7962833825

00:50:28.650 --> 00:50:32.570 Amazing talk and fascinating area.

NOTE Confidence: 0.7962833825

00:50:32.570 --> 00:50:34.602 Quick question about the

NOTE Confidence: 0.7962833825

00:50:34.602 --> 00:50:36.126 studies involving stress.

NOTE Confidence: 0.7962833825

00:50:36.130 --> 00:50:38.082 Were you specifically targeting

NOTE Confidence: 0.7962833825

00:50:38.082 --> 00:50:40.522 populations of parents with high

NOTE Confidence: 0.7962833825

00:50:40.522 --> 00:50:43.518 stress levels due to whatever other

NOTE Confidence: 0.7962833825

00:50:43.518 --> 00:50:45.088 factors that might be causing?

NOTE Confidence: 0.7962833825

00:50:45.090 --> 00:50:46.896 Or were you targeting sort of

NOTE Confidence: 0.7962833825

00:50:46.896 --> 00:50:48.870 more of a general population?

NOTE Confidence: 0.7962833825

00:50:48.870 --> 00:50:51.314 And if if so,

NOTE Confidence: 0.7962833825

00:50:51.314 --> 00:50:54.015 are they levels of stress that we

NOTE Confidence: 0.7962833825

00:50:54.015 --> 00:50:55.490 should be particularly worried about?

NOTE Confidence: 0.7962833825

00:50:55.490 --> 00:50:56.420 Can we quantify

NOTE Confidence: 0.9081294225

00:50:56.430 --> 00:50:58.670 it? Can we know when to intervene

NOTE Confidence: 0.9081294225

00:50:58.670 --> 00:51:00.040 can and when are we dealing

NOTE Confidence: 0.9081294225

00:51:00.040 --> 00:51:01.519 with the natural variation?

NOTE Confidence: 0.839355434615384

00:51:03.020 --> 00:51:04.819 I think that's a it's an important

NOTE Confidence: 0.839355434615384

00:51:04.819 --> 00:51:06.638 question and very difficult to answer.

NOTE Confidence: 0.839355434615384

00:51:06.640 --> 00:51:08.280 So the the first part is very easy.

NOTE Confidence: 0.839355434615384

00:51:08.280 --> 00:51:10.140 So the initial studies we did

NOTE Confidence: 0.839355434615384

00:51:10.140 --> 00:51:12.368 and the data I presented today

NOTE Confidence: 0.839355434615384

00:51:12.368 --> 00:51:14.638 was just a normal population,

NOTE Confidence: 0.839355434615384

00:51:14.640 --> 00:51:16.640 so normal variation and stress

NOTE Confidence: 0.839355434615384

00:51:16.640 --> 00:51:18.240 our current ongoing work.

NOTE Confidence: 0.839355434615384

00:51:18.240 --> 00:51:21.180 We have enriched the cohorts for women

NOTE Confidence: 0.839355434615384

00:51:21.180 --> 00:51:23.440 exposed to childhood maltreatment.

NOTE Confidence: 0.839355434615384

00:51:23.440 --> 00:51:26.100 So they are slightly higher risk because

NOTE Confidence: 0.839355434615384

00:51:26.100 --> 00:51:28.404 we want to investigate this further

NOTE Confidence: 0.839355434615384

00:51:28.404 --> 00:51:30.732 and also start looking further into

NOTE Confidence: 0.839355434615384

00:51:30.732 --> 00:51:32.888 these the moderating role of these.

NOTE Confidence: 0.839355434615384

00:51:32.890 --> 00:51:35.410 So we have enriched.

NOTE Confidence: 0.839355434615384

00:51:35.410 --> 00:51:37.930 Our ongoing cohorts.

NOTE Confidence: 0.839355434615384

00:51:37.930 --> 00:51:39.226 What are levels that we should

NOTE Confidence: 0.839355434615384

00:51:39.226 --> 00:51:40.090 be paying attention to?

NOTE Confidence: 0.839355434615384

00:51:40.090 --> 00:51:42.118 I think this is really difficult

NOTE Confidence: 0.839355434615384

00:51:42.118 --> 00:51:44.866 because as I said it's not a one-on-one

NOTE Confidence: 0.839355434615384

00:51:44.866 --> 00:51:46.611 translation and actually there are

NOTE Confidence: 0.839355434615384

00:51:46.611 --> 00:51:49.381 a lot of studies that don't find

NOTE Confidence: 0.839355434615384

00:51:49.381 --> 00:51:50.949 associations between variation and

NOTE Confidence: 0.839355434615384

00:51:51.010 --> 00:51:52.938 psychological stress and biological

NOTE Confidence: 0.839355434615384

00:51:52.938 --> 00:51:54.866 mediators that they measure.

NOTE Confidence: 0.839355434615384

00:51:54.870 --> 00:51:57.215 And I think well obviously it doesn't

NOTE Confidence: 0.839355434615384

00:51:57.215 --> 00:51:59.430 mean that there is no association,

NOTE Confidence: 0.839355434615384

00:51:59.430 --> 00:52:01.845 I don't think it's it's measured correctly.

NOTE Confidence: 0.839355434615384

00:52:01.850 --> 00:52:03.710 So something that we have done

NOTE Confidence: 0.839355434615384

00:52:03.710 --> 00:52:05.965 for example in this but these

NOTE Confidence: 0.839355434615384

00:52:05.965 --> 00:52:07.865 ecological momentary assessments is.

NOTE Confidence: 0.839355434615384

00:52:07.870 --> 00:52:10.719 That we see that the intra individual

NOTE Confidence: 0.839355434615384

00:52:10.719 --> 00:52:13.575 variation in stress is what is

NOTE Confidence: 0.839355434615384

00:52:13.575 --> 00:52:15.655 associated with cortisol concentrations.

NOTE Confidence: 0.839355434615384

00:52:15.660 --> 00:52:18.160 Not the inter individual variation,

NOTE Confidence: 0.839355434615384

00:52:18.160 --> 00:52:20.970 but how much the individual

NOTE Confidence: 0.839355434615384

00:52:20.970 --> 00:52:23.780 varies around her or herself.

NOTE Confidence: 0.839355434615384

00:52:23.780 --> 00:52:27.980 Her own mean is what is important.

NOTE Confidence: 0.839355434615384

00:52:27.980 --> 00:52:31.304 So I think just based on

NOTE Confidence: 0.839355434615384

00:52:31.304 --> 00:52:33.520 questionnaire measures in screening,

NOTE Confidence: 0.839355434615384

00:52:33.520 --> 00:52:34.978 it would be hard to say,

NOTE Confidence: 0.839355434615384

00:52:34.980 --> 00:52:35.229 oh,

NOTE Confidence: 0.839355434615384

00:52:35.229 --> 00:52:36.972 this is what you should pay attention

NOTE Confidence: 0.839355434615384

00:52:36.972 --> 00:52:39.136 to and this is what you should not

NOTE Confidence: 0.839355434615384

00:52:39.136 --> 00:52:41.276 pay attention to because the how it

NOTE Confidence: 0.839355434615384

00:52:41.276 --> 00:52:43.388 gets translated into signals for the

NOTE Confidence: 0.839355434615384

00:52:43.388 --> 00:52:45.875 features might be very different based on,

NOTE Confidence: 0.839355434615384

00:52:45.880 --> 00:52:47.278 as I said,

NOTE Confidence: 0.839355434615384

00:52:47.278 --> 00:52:48.676 various resilience factors.

NOTE Confidence: 0.839355434615384

00:52:48.680 --> 00:52:50.934 But of course I think in general

NOTE Confidence: 0.839355434615384

00:52:50.934 --> 00:52:52.896 we should be paying attention

NOTE Confidence: 0.839355434615384

00:52:52.896 --> 00:52:55.196 to mental health and stress,

NOTE Confidence: 0.839355434615384

00:52:55.200 --> 00:52:58.260 especially in the enduring prenatal care.

NOTE Confidence: 0.839355434615384

00:52:58.260 --> 00:53:00.829 Because even if maybe it's not high

NOTE Confidence: 0.839355434615384

00:53:00.829 --> 00:53:03.989 enough to affect the fetus in a negative way,

NOTE Confidence: 0.839355434615384

00:53:03.990 --> 00:53:06.015 I mean you can do something for the mother.

NOTE Confidence: 0.839355434615384

00:53:06.020 --> 00:53:08.162 And I think in general it's still

NOTE Confidence: 0.839355434615384

00:53:08.162 --> 00:53:10.118 a problem that mental health issues

NOTE Confidence: 0.839355434615384

00:53:10.118 --> 00:53:12.393 are not very much the focus or

NOTE Confidence: 0.839355434615384

00:53:12.458 --> 00:53:14.368 at least are paying attention,

NOTE Confidence: 0.839355434615384

00:53:14.370 --> 00:53:17.154 being paid attention to enough during

NOTE Confidence: 0.839355434615384

00:53:17.154 --> 00:53:20.400 prenatal care and similarly the

NOTE Confidence: 0.839355434615384

00:53:20.400 --> 00:53:24.100 these adverse childhood experiences.

NOTE Confidence: 0.839355434615384

00:53:24.100 --> 00:53:26.512 I I always say I I really had a

NOTE Confidence: 0.839355434615384

00:53:26.512 --> 00:53:28.939 very difficult time to establish,

NOTE Confidence: 0.839355434615384

00:53:28.940 --> 00:53:29.198 um,

NOTE Confidence: 0.839355434615384

00:53:29.198 --> 00:53:30.746 the study and in Germany because

NOTE Confidence: 0.839355434615384

00:53:30.746 --> 00:53:33.283 I got a lot of feedback saying you

NOTE Confidence: 0.839355434615384

00:53:33.283 --> 00:53:34.983 cannot ask pregnant women about

NOTE Confidence: 0.839355434615384

00:53:35.048 --> 00:53:36.809 adverse childhood experiences.

NOTE Confidence: 0.839355434615384

00:53:36.810 --> 00:53:37.635 You will read,

NOTE Confidence: 0.839355434615384

00:53:37.635 --> 00:53:39.010 traumatize them and you should

NOTE Confidence: 0.839355434615384

00:53:39.010 --> 00:53:40.936 not do that to a pregnant woman.

NOTE Confidence: 0.839355434615384

00:53:40.940 --> 00:53:43.173 And I really had to argue that

NOTE Confidence: 0.839355434615384

00:53:43.173 --> 00:53:45.107 I think we're doing something

NOTE Confidence: 0.839355434615384

00:53:45.107 --> 00:53:47.807 good for the women because these

NOTE Confidence: 0.839355434615384

00:53:47.807 --> 00:53:50.158 thoughts will get illicit anyway,

NOTE Confidence: 0.839355434615384

00:53:50.160 --> 00:53:51.918 because now they are becoming parents.

NOTE Confidence: 0.839355434615384

00:53:51.920 --> 00:53:53.999 They will think about their own childhood.

NOTE Confidence: 0.839355434615384

00:53:54.000 --> 00:53:56.080 And it is important to do this in a very

NOTE Confidence: 0.839355434615384

00:53:56.137 --> 00:53:58.426 secure environment and then offer them help.

NOTE Confidence: 0.839355434615384

00:53:58.430 --> 00:54:00.896 And they are actually papers out

NOTE Confidence: 0.839355434615384

00:54:00.896 --> 00:54:03.478 there on exactly this topic saying

NOTE Confidence: 0.839355434615384

00:54:03.478 --> 00:54:06.430 that women would hope to be asked

NOTE Confidence: 0.839355434615384

00:54:06.430 --> 00:54:07.690 about these experiences,

NOTE Confidence: 0.839355434615384

00:54:07.690 --> 00:54:07.965 especially,

NOTE Confidence: 0.839355434615384

00:54:07.965 --> 00:54:08.515 for example,

NOTE Confidence: 0.839355434615384

00:54:08.515 --> 00:54:10.165 if it has been sexual abuse,

NOTE Confidence: 0.839355434615384

00:54:10.170 --> 00:54:11.795 because this can really affect

NOTE Confidence: 0.839355434615384

00:54:11.795 --> 00:54:13.420 a vaginal delivery and it's

NOTE Confidence: 0.846745107619048

00:54:13.481 --> 00:54:15.395 very important that these women can

NOTE Confidence: 0.846745107619048

00:54:15.395 --> 00:54:17.240 address these kind of concerns.

NOTE Confidence: 0.846745107619048

00:54:17.240 --> 00:54:19.928 Early on our studies, for example,

NOTE Confidence: 0.846745107619048

00:54:19.930 --> 00:54:22.051 we've had these cases and we went

NOTE Confidence: 0.846745107619048

00:54:22.051 --> 00:54:24.200 to the delivery room with them and.

NOTE Confidence: 0.846745107619048

00:54:24.200 --> 00:54:25.992 Some of them, it really helped them

NOTE Confidence: 0.846745107619048

00:54:25.992 --> 00:54:27.791 to prepare for that and sometimes I

NOTE Confidence: 0.846745107619048

00:54:27.791 --> 00:54:29.576 still have to do a cesarean section

NOTE Confidence: 0.846745107619048

00:54:29.576 --> 00:54:31.368 and others were then able to really

NOTE Confidence: 0.846745107619048

00:54:31.368 --> 00:54:33.080 try it and and go through with it.

NOTE Confidence: 0.846745107619048

00:54:33.080 --> 00:54:35.840 I think it's it's in general I would

NOTE Confidence: 0.846745107619048

00:54:35.840 --> 00:54:39.185 say we should start paying attention to

NOTE Confidence: 0.846745107619048

00:54:39.185 --> 00:54:42.720 stress and mental health issues in general.

NOTE Confidence: 0.846745107619048

00:54:42.720 --> 00:54:45.088 And even if even if it's not like

NOTE Confidence: 0.846745107619048

00:54:45.088 --> 00:54:47.145 a extremely higher or toxic level

NOTE Confidence: 0.846745107619048

00:54:47.145 --> 00:54:49.239 that it would affect the fetus,

NOTE Confidence: 0.846745107619048

00:54:49.240 --> 00:54:51.382 we can do something good for the

NOTE Confidence: 0.846745107619048

00:54:51.382 --> 00:54:53.369 for the pregnant woman and that

NOTE Confidence: 0.846745107619048

00:54:53.369 --> 00:54:55.044 will have a positive impact.

NOTE Confidence: 0.846745107619048

00:54:55.050 --> 00:54:57.150 But I cannot say, well,

NOTE Confidence: 0.846745107619048

00:54:57.150 --> 00:54:59.337 this is a cut off that you should pay

NOTE Confidence: 0.846745107619048

00:54:59.337 --> 00:55:01.296 attention to and others you you shouldn't.

NOTE Confidence: 0.846745107619048

00:55:01.300 --> 00:55:02.992 It's very difficult of course I

NOTE Confidence: 0.846745107619048

00:55:02.992 --> 00:55:05.900 think you're rallying cry for.

NOTE Confidence: 0.846745107619048

00:55:05.900 --> 00:55:08.970 The support for pregnant individuals

NOTE Confidence: 0.79886805

00:55:07.080 --> 00:55:08.018 is a great way to end this.

NOTE Confidence: 0.79886805

00:55:08.020 --> 00:55:09.160 Thank you again, Doctor Bush.