

WEBVTT

NOTE duration:"01:03:15"

NOTE recognizability:0.853

NOTE language:en-us

NOTE Confidence: 0.843327943333333

00:00:00.000 --> 00:00:01.314 Good afternoon, everyone.

NOTE Confidence: 0.843327943333333

00:00:01.314 --> 00:00:03.942 I think we'll make a start.

NOTE Confidence: 0.86612206

00:00:05.430 --> 00:00:06.078 So it's great to

NOTE Confidence: 0.91326451

00:00:06.090 --> 00:00:07.630 see you all here for grand rounds.

NOTE Confidence: 0.91326451

00:00:07.630 --> 00:00:09.275 Welcome to grand rounds for those of

NOTE Confidence: 0.91326451

00:00:09.275 --> 00:00:11.109 you who are celebrating last week.

NOTE Confidence: 0.91326451

00:00:11.110 --> 00:00:13.422 I hope you enjoyed your Thanksgiving and I

NOTE Confidence: 0.91326451

00:00:13.422 --> 00:00:15.922 hope that everyone had a restful and relaxing

NOTE Confidence: 0.91326451

00:00:15.922 --> 00:00:18.169 few days towards the end of last week.

NOTE Confidence: 0.91326451

00:00:18.170 --> 00:00:20.760 And just a reminder about next week,

NOTE Confidence: 0.91326451

00:00:20.760 --> 00:00:22.640 we'll have compassionate care rounds

NOTE Confidence: 0.91326451

00:00:22.640 --> 00:00:25.430 here in the Cohen and live on zoom.

NOTE Confidence: 0.91326451

00:00:25.430 --> 00:00:26.381 As a reminder,

NOTE Confidence: 0.91326451

00:00:26.381 --> 00:00:27.966 that session won't be recorded.
NOTE Confidence: 0.91326451

00:00:27.970 --> 00:00:30.658 So please do join us either in person
NOTE Confidence: 0.91326451

00:00:30.658 --> 00:00:33.446 or live on zoom, or we'll hear from
NOTE Confidence: 0.91326451

00:00:33.446 --> 00:00:35.600 an expert panel on the complex.
NOTE Confidence: 0.91326451

00:00:35.600 --> 00:00:38.366 Care needs of patients dealing with
NOTE Confidence: 0.91326451

00:00:38.366 --> 00:00:40.210 suicidality and disordered eating.
NOTE Confidence: 0.91326451

00:00:40.210 --> 00:00:42.688 So please do join us for that.
NOTE Confidence: 0.91326451

00:00:42.690 --> 00:00:44.196 Now in the spirit of the
NOTE Confidence: 0.91326451

00:00:44.196 --> 00:00:45.650 holiday that we just marked,
NOTE Confidence: 0.91326451

00:00:45.650 --> 00:00:47.904 I am very thankful to welcome to
NOTE Confidence: 0.91326451

00:00:47.904 --> 00:00:50.188 have our speaker join us here today,
NOTE Confidence: 0.91326451

00:00:50.190 --> 00:00:51.168 Doctor Aaron Dunn.
NOTE Confidence: 0.91326451

00:00:51.168 --> 00:00:53.450 And so Doctor Dunn is an associate
NOTE Confidence: 0.91326451

00:00:53.514 --> 00:00:55.210 professor of psychiatry and
NOTE Confidence: 0.91326451

00:00:55.210 --> 00:00:56.906 Pediatrics and Harvard Medical
NOTE Confidence: 0.91326451

00:00:56.906 --> 00:00:59.113 School and also an assistant

NOTE Confidence: 0.91326451

00:00:59.113 --> 00:01:01.263 investigator in Mass General Hospital.

NOTE Confidence: 0.91326451

00:01:01.270 --> 00:01:03.358 And I think it's fair to say that Doctor

NOTE Confidence: 0.91326451

00:01:03.358 --> 00:01:05.609 Dunn has pioneered the application of life.

NOTE Confidence: 0.91326451

00:01:05.610 --> 00:01:06.654 Of course,

NOTE Confidence: 0.91326451

00:01:06.654 --> 00:01:09.264 epidemiological methods to study the

NOTE Confidence: 0.91326451

00:01:09.264 --> 00:01:11.350 biological embedding of adversity

NOTE Confidence: 0.91326451

00:01:11.350 --> 00:01:13.996 and the impact of adversity on

NOTE Confidence: 0.91326451

00:01:13.996 --> 00:01:16.060 adult mental health outcomes.

NOTE Confidence: 0.91326451

00:01:16.060 --> 00:01:18.124 And now Doctor Dunn has received

NOTE Confidence: 0.91326451

00:01:18.124 --> 00:01:19.500 substantial support from the

NOTE Confidence: 0.91326451

00:01:19.558 --> 00:01:21.250 National Institutes of Health,

NOTE Confidence: 0.91326451

00:01:21.250 --> 00:01:22.410 including the National Institute

NOTE Confidence: 0.91326451

00:01:22.410 --> 00:01:23.280 of Mental Health,

NOTE Confidence: 0.91326451

00:01:23.280 --> 00:01:24.668 and has published prolifically,

NOTE Confidence: 0.91326451

00:01:24.668 --> 00:01:26.056 as you'll have seen.

NOTE Confidence: 0.91326451

00:01:26.060 --> 00:01:27.756 And just as recently as two weeks ago,
NOTE Confidence: 0.91326451

00:01:27.760 --> 00:01:29.566 I think you marked your 100th
NOTE Confidence: 0.91326451

00:01:29.566 --> 00:01:31.214 publication and a nice systematic
NOTE Confidence: 0.91326451

00:01:31.214 --> 00:01:33.500 review of the of sensitive periods,
NOTE Confidence: 0.91326451

00:01:33.500 --> 00:01:34.580 the evidence for sensitive
NOTE Confidence: 0.91326451

00:01:34.580 --> 00:01:35.930 periods of exposure to child.
NOTE Confidence: 0.91326451

00:01:35.930 --> 00:01:37.235 Our treatment and the prediction
NOTE Confidence: 0.91326451

00:01:37.235 --> 00:01:38.279 of adult health outcomes.
NOTE Confidence: 0.91326451

00:01:38.280 --> 00:01:40.176 So hopefully we'll hear a little
NOTE Confidence: 0.91326451

00:01:40.176 --> 00:01:42.310 bit about that today and a new
NOTE Confidence: 0.91326451

00:01:42.310 --> 00:01:43.918 area in the Dunlap looking at
NOTE Confidence: 0.91326451

00:01:43.918 --> 00:01:46.109 teeth as a potential biomarker of
NOTE Confidence: 0.91326451

00:01:46.109 --> 00:01:47.593 exposure to early adversity.
NOTE Confidence: 0.91326451

00:01:47.600 --> 00:01:47.944 Again,
NOTE Confidence: 0.91326451

00:01:47.944 --> 00:01:50.696 very excited to hear more about that today.
NOTE Confidence: 0.91326451

00:01:50.700 --> 00:01:52.856 So please give a warm child study

NOTE Confidence: 0.91326451

00:01:52.856 --> 00:01:54.570 center welcome to Doctor Dunn.

NOTE Confidence: 0.87195876625

00:01:59.480 --> 00:02:01.680 I'm impressed, Karen. You did

NOTE Confidence: 0.87195876625

00:02:01.680 --> 00:02:03.930 that all memorized. It's amazing.

NOTE Confidence: 0.935726333636364

00:02:06.050 --> 00:02:07.442 All right, so let me go

NOTE Confidence: 0.935726333636364

00:02:07.442 --> 00:02:08.820 ahead and share my screen.

NOTE Confidence: 0.8811313425

00:02:18.330 --> 00:02:21.546 OK. I think we're, I think we're good.

NOTE Confidence: 0.8811313425

00:02:21.550 --> 00:02:22.930 Well, thank you everyone for the

NOTE Confidence: 0.8811313425

00:02:22.930 --> 00:02:24.150 opportunity to be here today.

NOTE Confidence: 0.8811313425

00:02:24.150 --> 00:02:25.620 I'm really excited to share

NOTE Confidence: 0.8811313425

00:02:25.620 --> 00:02:27.450 with you more about my work.

NOTE Confidence: 0.8811313425

00:02:27.450 --> 00:02:29.665 As Kieran said, around childhood

NOTE Confidence: 0.8811313425

00:02:29.665 --> 00:02:31.437 adversity and mental health,

NOTE Confidence: 0.8811313425

00:02:31.440 --> 00:02:33.320 I'm going to tell you a little bit

NOTE Confidence: 0.8811313425

00:02:33.320 --> 00:02:35.106 more about opportunities I think there

NOTE Confidence: 0.8811313425

00:02:35.106 --> 00:02:36.990 are to identify risk and promote

NOTE Confidence: 0.8811313425

00:02:37.046 --> 00:02:38.670 resilience across the lifespan.
NOTE Confidence: 0.8811313425

00:02:38.670 --> 00:02:39.726 Can everyone hear me?
NOTE Confidence: 0.8811313425

00:02:39.726 --> 00:02:41.472 OK, OK, perfect.
NOTE Confidence: 0.8811313425

00:02:41.472 --> 00:02:45.177 So I have no disclosures.
NOTE Confidence: 0.8811313425

00:02:45.180 --> 00:02:47.500 So just to Orient us a little bit,
NOTE Confidence: 0.8811313425

00:02:47.500 --> 00:02:49.980 I want to say a little bit about
NOTE Confidence: 0.8811313425

00:02:49.980 --> 00:02:50.600 childhood adversity.
NOTE Confidence: 0.8811313425

00:02:50.600 --> 00:02:51.312 Childhood adversity,
NOTE Confidence: 0.8811313425

00:02:51.312 --> 00:02:54.585 I think is so critical to study because it's
NOTE Confidence: 0.8811313425

00:02:54.585 --> 00:02:57.077 one of the most impactful social determinants
NOTE Confidence: 0.8811313425

00:02:57.077 --> 00:02:59.879 of mental health as well as physical health.
NOTE Confidence: 0.8811313425

00:02:59.880 --> 00:03:01.776 When I think about childhood adversity,
NOTE Confidence: 0.8811313425

00:03:01.780 --> 00:03:03.808 I think about a range of
NOTE Confidence: 0.8811313425

00:03:03.808 --> 00:03:05.160 different kinds of experiences.
NOTE Confidence: 0.8811313425

00:03:05.160 --> 00:03:07.330 These could be events that happen within
NOTE Confidence: 0.8811313425

00:03:07.330 --> 00:03:09.679 the household or outside of the household.

NOTE Confidence: 0.8811313425
00:03:09.680 --> 00:03:12.110 They could be perpetrated by
NOTE Confidence: 0.8811313425
00:03:12.110 --> 00:03:14.540 loved ones or by strangers.
NOTE Confidence: 0.8811313425
00:03:14.540 --> 00:03:15.365 They could be.
NOTE Confidence: 0.8811313425
00:03:15.365 --> 00:03:16.465 Friends that are acute,
NOTE Confidence: 0.8811313425
00:03:16.470 --> 00:03:17.874 they could be chronic.
NOTE Confidence: 0.8811313425
00:03:17.874 --> 00:03:20.609 Some might meet the definition of a trauma,
NOTE Confidence: 0.8811313425
00:03:20.610 --> 00:03:21.837 others might not.
NOTE Confidence: 0.8811313425
00:03:21.837 --> 00:03:24.291 What we know from large scale
NOTE Confidence: 0.8811313425
00:03:24.291 --> 00:03:25.526 epidemiological studies that
NOTE Confidence: 0.8811313425
00:03:25.526 --> 00:03:27.788 have been done primarily in the
NOTE Confidence: 0.8811313425
00:03:27.788 --> 00:03:30.037 United States is that we know
NOTE Confidence: 0.8811313425
00:03:30.037 --> 00:03:31.465 that adversities are common,
NOTE Confidence: 0.8811313425
00:03:31.470 --> 00:03:33.108 so we know that more than half
NOTE Confidence: 0.8811313425
00:03:33.108 --> 00:03:35.235 of all kids growing up in the US
NOTE Confidence: 0.8811313425
00:03:35.235 --> 00:03:36.995 will experience at least one type
NOTE Confidence: 0.8811313425

00:03:36.995 --> 00:03:38.665 of adversity in their lifespan.
NOTE Confidence: 0.8811313425

00:03:38.670 --> 00:03:41.463 We also know that there are large
NOTE Confidence: 0.8811313425

00:03:41.463 --> 00:03:43.131 racial ethnic minority differences
NOTE Confidence: 0.8811313425

00:03:43.131 --> 00:03:45.875 such that kids who grow up from.
NOTE Confidence: 0.8811313425

00:03:45.880 --> 00:03:49.240 Racial and non white families are
NOTE Confidence: 0.8811313425

00:03:49.240 --> 00:03:51.480 disproportionately affected by adversity,
NOTE Confidence: 0.8811313425

00:03:51.480 --> 00:03:52.118 and similarly,
NOTE Confidence: 0.8811313425

00:03:52.118 --> 00:03:54.032 we also know that girls are
NOTE Confidence: 0.8811313425

00:03:54.032 --> 00:03:55.955 more likely to experience some
NOTE Confidence: 0.8811313425

00:03:55.955 --> 00:03:57.579 adversities compared to boys.
NOTE Confidence: 0.8811313425

00:03:57.580 --> 00:03:59.476 The boys are also more likely
NOTE Confidence: 0.8811313425

00:03:59.476 --> 00:04:01.267 to experience some types of
NOTE Confidence: 0.8811313425

00:04:01.267 --> 00:04:03.139 interpersonal violence in particular.
NOTE Confidence: 0.8811313425

00:04:03.140 --> 00:04:06.040 Now I think this following
NOTE Confidence: 0.8811313425

00:04:06.040 --> 00:04:08.360 statistic is both sobering.
NOTE Confidence: 0.8811313425

00:04:08.360 --> 00:04:10.502 These two sets of statistics are

NOTE Confidence: 0.8811313425

00:04:10.502 --> 00:04:12.720 both sobering but also optimistic.

NOTE Confidence: 0.8811313425

00:04:12.720 --> 00:04:15.058 The first is that we know that

NOTE Confidence: 0.8811313425

00:04:15.058 --> 00:04:17.055 adversity is estimated to at least

NOTE Confidence: 0.8811313425

00:04:17.055 --> 00:04:19.218 double the risk of a mental disorder.

NOTE Confidence: 0.8811313425

00:04:19.220 --> 00:04:20.267 Throughout the lifespan.

NOTE Confidence: 0.8811313425

00:04:20.267 --> 00:04:20.616 Now,

NOTE Confidence: 0.8811313425

00:04:20.616 --> 00:04:23.150 it might not surprise you to hear

NOTE Confidence: 0.8811313425

00:04:23.150 --> 00:04:25.045 that childhood adversity is associated

NOTE Confidence: 0.8811313425

00:04:25.045 --> 00:04:27.209 with child onset or adolescent

NOTE Confidence: 0.8811313425

00:04:27.209 --> 00:04:28.967 onset psychiatric disorders.

NOTE Confidence: 0.8811313425

00:04:28.970 --> 00:04:31.082 But we also know that these

NOTE Confidence: 0.8811313425

00:04:31.082 --> 00:04:32.490 adversities are associated with

NOTE Confidence: 0.8811313425

00:04:32.552 --> 00:04:34.252 increased risk of disorders that

NOTE Confidence: 0.8811313425

00:04:34.252 --> 00:04:36.790 onset for the first time in adulthood.

NOTE Confidence: 0.8811313425

00:04:36.790 --> 00:04:38.430 And we also know,

NOTE Confidence: 0.8811313425

00:04:38.430 --> 00:04:40.070 particularly from recent large
NOTE Confidence: 0.8811313425

00:04:40.070 --> 00:04:41.590 scale meta analysis,
NOTE Confidence: 0.8811313425

00:04:41.590 --> 00:04:43.642 that if these effects of adversity
NOTE Confidence: 0.8811313425

00:04:43.642 --> 00:04:44.326 are causal,
NOTE Confidence: 0.8811313425

00:04:44.330 --> 00:04:47.354 they'd explain about 30 to 40%
NOTE Confidence: 0.8811313425

00:04:47.354 --> 00:04:49.538 of the total variability in risk
NOTE Confidence: 0.8811313425

00:04:49.538 --> 00:04:51.310 for mental health problems.
NOTE Confidence: 0.8811313425

00:04:51.310 --> 00:04:52.462 So to me,
NOTE Confidence: 0.8811313425

00:04:52.462 --> 00:04:54.766 I hear that both optimistically sobering,
NOTE Confidence: 0.8811313425

00:04:54.770 --> 00:04:55.050 right?
NOTE Confidence: 0.8811313425

00:04:55.050 --> 00:04:56.730 It's a it's a scary statistic,
NOTE Confidence: 0.8811313425

00:04:56.730 --> 00:04:59.094 but I think it also suggests
NOTE Confidence: 0.8811313425

00:04:59.094 --> 00:05:01.196 opportunities for where our work
NOTE Confidence: 0.8811313425

00:05:01.196 --> 00:05:03.426 can really have potential impact.
NOTE Confidence: 0.8811313425

00:05:03.430 --> 00:05:04.969 A lot of the work that we do in
NOTE Confidence: 0.8811313425

00:05:04.969 --> 00:05:06.746 my group is focused on depression,

NOTE Confidence: 0.8811313425

00:05:06.750 --> 00:05:08.234 which for those of you who may

NOTE Confidence: 0.8811313425

00:05:08.234 --> 00:05:08.870 not be familiar,

NOTE Confidence: 0.8811313425

00:05:08.870 --> 00:05:10.946 is a major public health problem.

NOTE Confidence: 0.8811313425

00:05:10.950 --> 00:05:12.882 So depression is a disorder that's

NOTE Confidence: 0.8811313425

00:05:12.882 --> 00:05:14.170 common throughout the lifespan.

NOTE Confidence: 0.8811313425

00:05:14.170 --> 00:05:16.284 About one out of every five people

NOTE Confidence: 0.8811313425

00:05:16.284 --> 00:05:17.902 will experience an episode of

NOTE Confidence: 0.8811313425

00:05:17.902 --> 00:05:20.163 depression at some point in their lives.

NOTE Confidence: 0.930291391666667

00:05:20.170 --> 00:05:23.194 We also know that depression is a disorder

NOTE Confidence: 0.930291391666667

00:05:23.194 --> 00:05:24.810 that disproportionately effects women.

NOTE Confidence: 0.930291391666667

00:05:24.810 --> 00:05:27.072 So during childhood, boys and girls

NOTE Confidence: 0.930291391666667

00:05:27.072 --> 00:05:29.290 experience similar levels of depression.

NOTE Confidence: 0.930291391666667

00:05:29.290 --> 00:05:31.030 But something happens in adolescence

NOTE Confidence: 0.930291391666667

00:05:31.030 --> 00:05:33.670 where Girl Scout start to outnumber boys.

NOTE Confidence: 0.930291391666667

00:05:33.670 --> 00:05:36.430 By a ratio of two to one, and that

NOTE Confidence: 0.930291391666667

00:05:36.430 --> 00:05:39.055 disparity persists throughout the lifespan.

NOTE Confidence: 0.930291391666667

00:05:39.060 --> 00:05:41.052 We also know that depression is

NOTE Confidence: 0.930291391666667

00:05:41.052 --> 00:05:43.152 associated with a host of negative

NOTE Confidence: 0.930291391666667

00:05:43.152 --> 00:05:45.637 consequences in the short and long term.

NOTE Confidence: 0.930291391666667

00:05:45.640 --> 00:05:46.716 We know it's recurrent,

NOTE Confidence: 0.930291391666667

00:05:46.716 --> 00:05:48.920 we know their side effects from medication.

NOTE Confidence: 0.930291391666667

00:05:48.920 --> 00:05:50.520 We know that it affects

NOTE Confidence: 0.930291391666667

00:05:50.520 --> 00:05:52.520 people's ability to go to work,

NOTE Confidence: 0.930291391666667

00:05:52.520 --> 00:05:54.560 to complete school, and so forth.

NOTE Confidence: 0.930291391666667

00:05:54.560 --> 00:05:56.751 And I think in its most severe

NOTE Confidence: 0.930291391666667

00:05:56.751 --> 00:05:58.719 form is suicide and self harm.

NOTE Confidence: 0.930291391666667

00:05:58.720 --> 00:06:01.318 So because depression is so common,

NOTE Confidence: 0.930291391666667

00:06:01.320 --> 00:06:02.848 and because it disproportionately

NOTE Confidence: 0.930291391666667

00:06:02.848 --> 00:06:05.140 affects large segments of the population.

NOTE Confidence: 0.930291391666667

00:06:05.140 --> 00:06:07.888 And is associated with so many

NOTE Confidence: 0.930291391666667

00:06:07.888 --> 00:06:08.804 negative consequences.

NOTE Confidence: 0.930291391666667
00:06:08.810 --> 00:06:09.111 Hopefully,
NOTE Confidence: 0.930291391666667
00:06:09.111 --> 00:06:11.519 it might not be a surprise to learn
NOTE Confidence: 0.930291391666667
00:06:11.519 --> 00:06:14.048 that depression is currently the second
NOTE Confidence: 0.930291391666667
00:06:14.048 --> 00:06:16.208 leading cause of disability worldwide.
NOTE Confidence: 0.930291391666667
00:06:16.210 --> 00:06:18.883 So my group is really focused on trying to
NOTE Confidence: 0.930291391666667
00:06:18.883 --> 00:06:21.347 identify ways that we can prevent depression.
NOTE Confidence: 0.930291391666667
00:06:21.350 --> 00:06:23.216 And I think that's really critical
NOTE Confidence: 0.930291391666667
00:06:23.216 --> 00:06:24.825 because it's a disorder that
NOTE Confidence: 0.930291391666667
00:06:24.825 --> 00:06:26.385 strikes when people are young.
NOTE Confidence: 0.930291391666667
00:06:26.390 --> 00:06:27.782 And once it emerges,
NOTE Confidence: 0.930291391666667
00:06:27.782 --> 00:06:29.870 it tends to be highly recurrent.
NOTE Confidence: 0.930291391666667
00:06:29.870 --> 00:06:33.113 So we know that between 20 to 40% of
NOTE Confidence: 0.930291391666667
00:06:33.113 --> 00:06:35.528 people who experience depression will
NOTE Confidence: 0.930291391666667
00:06:35.528 --> 00:06:38.810 have had their first onset by age 21.
NOTE Confidence: 0.930291391666667
00:06:38.810 --> 00:06:40.497 And we also know that about 3
NOTE Confidence: 0.930291391666667

00:06:40.497 --> 00:06:42.382 out of every four people with
NOTE Confidence: 0.930291391666667

00:06:42.382 --> 00:06:44.217 depression will experience at least
NOTE Confidence: 0.930291391666667

00:06:44.217 --> 00:06:46.048 one relapse in their lifespan.
NOTE Confidence: 0.930291391666667

00:06:46.050 --> 00:06:47.996 So when I hear data like this,
NOTE Confidence: 0.930291391666667

00:06:48.000 --> 00:06:50.790 to me the the the message is we need to
NOTE Confidence: 0.930291391666667

00:06:50.869 --> 00:06:53.809 better understand what causes depression,
NOTE Confidence: 0.930291391666667

00:06:53.810 --> 00:06:54.770 what's its etiology,
NOTE Confidence: 0.930291391666667

00:06:54.770 --> 00:06:56.370 how does it come about,
NOTE Confidence: 0.930291391666667

00:06:56.370 --> 00:06:58.762 so that we can use those insights to
NOTE Confidence: 0.930291391666667

00:06:58.762 --> 00:07:00.595 then identify targets to identify kids
NOTE Confidence: 0.930291391666667

00:07:00.595 --> 00:07:03.039 who might be at risk and prevent the
NOTE Confidence: 0.930291391666667

00:07:03.039 --> 00:07:05.527 onset of depression and do that as early
NOTE Confidence: 0.930291391666667

00:07:05.530 --> 00:07:08.490 on as we possibly can in the lifespan.
NOTE Confidence: 0.930291391666667

00:07:08.490 --> 00:07:08.854 So.
NOTE Confidence: 0.930291391666667

00:07:08.854 --> 00:07:10.310 Committed to that goal.
NOTE Confidence: 0.930291391666667

00:07:10.310 --> 00:07:12.816 The current focus of my research group

NOTE Confidence: 0.930291391666667
00:07:12.816 --> 00:07:15.072 has been organized in these 44 domains.
NOTE Confidence: 0.930291391666667
00:07:15.072 --> 00:07:17.214 So we do work on The Who,
NOTE Confidence: 0.930291391666667
00:07:17.220 --> 00:07:19.405 how and the when question
NOTE Confidence: 0.930291391666667
00:07:19.405 --> 00:07:20.716 around depression prevention.
NOTE Confidence: 0.930291391666667
00:07:20.720 --> 00:07:22.676 So with respect to The Who,
NOTE Confidence: 0.930291391666667
00:07:22.680 --> 00:07:24.940 a lot of what we do is focused on trying
NOTE Confidence: 0.930291391666667
00:07:24.999 --> 00:07:27.295 to identify people at highest risk using
NOTE Confidence: 0.930291391666667
00:07:27.295 --> 00:07:29.749 genetic and other markers of vulnerability.
NOTE Confidence: 0.930291391666667
00:07:29.750 --> 00:07:31.973 So that's work that we do in in relationship
NOTE Confidence: 0.930291391666667
00:07:31.973 --> 00:07:34.177 to the Psychiatric Genomics Consortium,
NOTE Confidence: 0.930291391666667
00:07:34.180 --> 00:07:34.806 for example.
NOTE Confidence: 0.930291391666667
00:07:34.806 --> 00:07:36.997 We also do a lot of work,
NOTE Confidence: 0.930291391666667
00:07:37.000 --> 00:07:38.204 and I'm going to tell you a
NOTE Confidence: 0.930291391666667
00:07:38.204 --> 00:07:39.220 lot about this work today.
NOTE Confidence: 0.930291391666667
00:07:39.220 --> 00:07:41.360 Around the biological embedding of
NOTE Confidence: 0.930291391666667

00:07:41.360 --> 00:07:43.500 adversity and the mechanisms that
NOTE Confidence: 0.930291391666667

00:07:43.566 --> 00:07:46.030 might explain how it is that these
NOTE Confidence: 0.930291391666667

00:07:46.030 --> 00:07:47.784 stressors and traumas might get
NOTE Confidence: 0.930291391666667

00:07:47.784 --> 00:07:49.982 under our skin to shape our health,
NOTE Confidence: 0.930291391666667

00:07:49.990 --> 00:07:51.946 the third area is really focused
NOTE Confidence: 0.930291391666667

00:07:51.946 --> 00:07:52.924 on sensitive periods.
NOTE Confidence: 0.930291391666667

00:07:52.930 --> 00:07:53.818 Try to understand,
NOTE Confidence: 0.930291391666667

00:07:53.818 --> 00:07:55.594 are there ages in the course
NOTE Confidence: 0.930291391666667

00:07:55.594 --> 00:07:57.835 of the lifespan when our life
NOTE Confidence: 0.930291391666667

00:07:57.835 --> 00:07:58.966 experience matters more?
NOTE Confidence: 0.930291391666667

00:07:58.970 --> 00:08:00.650 And could that differentially
NOTE Confidence: 0.930291391666667

00:08:00.650 --> 00:08:02.330 predict risk for depression?
NOTE Confidence: 0.930291391666667

00:08:02.330 --> 00:08:03.329 And then finally,
NOTE Confidence: 0.930291391666667

00:08:03.329 --> 00:08:04.994 I'm someone that really believes
NOTE Confidence: 0.930291391666667

00:08:04.994 --> 00:08:07.190 in and committed to translation,
NOTE Confidence: 0.930291391666667

00:08:07.190 --> 00:08:09.548 so I don't want to just do ivory tower.

NOTE Confidence: 0.930291391666667
00:08:09.550 --> 00:08:09.784 Client,
NOTE Confidence: 0.930291391666667
00:08:09.784 --> 00:08:10.486 so to speak,
NOTE Confidence: 0.930291391666667
00:08:10.486 --> 00:08:11.890 I want to figure out how
NOTE Confidence: 0.860109156842105
00:08:11.951 --> 00:08:14.300 to get our findings out to make a difference.
NOTE Confidence: 0.860109156842105
00:08:14.300 --> 00:08:16.071 So that's where we've also been doing
NOTE Confidence: 0.860109156842105
00:08:16.071 --> 00:08:18.617 work to try to build novel infrastructure
NOTE Confidence: 0.860109156842105
00:08:18.617 --> 00:08:20.349 for scientific knowledge translation.
NOTE Confidence: 0.860109156842105
00:08:20.350 --> 00:08:22.734 And I'm proud to partner with Josh Rothman,
NOTE Confidence: 0.860109156842105
00:08:22.740 --> 00:08:24.044 a colleague in psychiatry,
NOTE Confidence: 0.860109156842105
00:08:24.044 --> 00:08:26.000 around a birth cohort work that
NOTE Confidence: 0.860109156842105
00:08:26.059 --> 00:08:27.884 we're doing where we're deliberately
NOTE Confidence: 0.860109156842105
00:08:27.884 --> 00:08:30.057 from the beginning trying to design
NOTE Confidence: 0.860109156842105
00:08:30.057 --> 00:08:32.059 it to not just observe but also
NOTE Confidence: 0.860109156842105
00:08:32.059 --> 00:08:33.326 intervene in those participants.
NOTE Confidence: 0.860109156842105
00:08:33.326 --> 00:08:37.611 So what I want to do in this talk is tell you
NOTE Confidence: 0.860109156842105

00:08:37.611 --> 00:08:40.449 more about two specific aspects of my labs.

NOTE Confidence: 0.860109156842105

00:08:40.450 --> 00:08:42.680 Work related to childhood adversity.

NOTE Confidence: 0.860109156842105

00:08:42.680 --> 00:08:44.255 So the first is work that we've

NOTE Confidence: 0.860109156842105

00:08:44.255 --> 00:08:46.361 been doing to try to identify these

NOTE Confidence: 0.860109156842105

00:08:46.361 --> 00:08:47.737 sensitive periods in development.

NOTE Confidence: 0.860109156842105

00:08:47.740 --> 00:08:49.714 And then I'll also transition into

NOTE Confidence: 0.860109156842105

00:08:49.714 --> 00:08:51.825 telling you more about what we're

NOTE Confidence: 0.860109156842105

00:08:51.825 --> 00:08:54.009 doing to try to overcome measurement

NOTE Confidence: 0.860109156842105

00:08:54.009 --> 00:08:56.191 challenges that exist in capturing

NOTE Confidence: 0.860109156842105

00:08:56.191 --> 00:08:57.580 childhood diversity exposure.

NOTE Confidence: 0.860109156842105

00:08:57.580 --> 00:08:58.840 And then at the end,

NOTE Confidence: 0.860109156842105

00:08:58.840 --> 00:08:59.868 I'm not a clinician,

NOTE Confidence: 0.860109156842105

00:08:59.868 --> 00:09:01.871 but I'll try to talk a little

NOTE Confidence: 0.860109156842105

00:09:01.871 --> 00:09:04.271 bit about some of the clinical

NOTE Confidence: 0.860109156842105

00:09:04.271 --> 00:09:05.827 implications and applications I

NOTE Confidence: 0.860109156842105

00:09:05.827 --> 00:09:07.567 think might exist for this work.

NOTE Confidence: 0.860109156842105
00:09:07.570 --> 00:09:09.635 So let me just also clarify at
NOTE Confidence: 0.860109156842105
00:09:09.635 --> 00:09:11.405 the beginning because one of the
NOTE Confidence: 0.860109156842105
00:09:11.405 --> 00:09:12.785 questions you might have is,
NOTE Confidence: 0.860109156842105
00:09:12.790 --> 00:09:14.454 you know, childhood adversity,
NOTE Confidence: 0.860109156842105
00:09:14.454 --> 00:09:15.160 trauma, aces,
NOTE Confidence: 0.860109156842105
00:09:15.160 --> 00:09:17.770 do all of these things mean the same thing?
NOTE Confidence: 0.860109156842105
00:09:17.770 --> 00:09:19.058 So from my perspective,
NOTE Confidence: 0.860109156842105
00:09:19.058 --> 00:09:21.499 I tend to use the language of
NOTE Confidence: 0.860109156842105
00:09:21.499 --> 00:09:23.271 childhood adversity because I
NOTE Confidence: 0.860109156842105
00:09:23.271 --> 00:09:25.043 think it's more encompassing.
NOTE Confidence: 0.860109156842105
00:09:25.050 --> 00:09:26.742 Childhood adversity is generally
NOTE Confidence: 0.860109156842105
00:09:26.742 --> 00:09:28.857 defined as circumstances or events
NOTE Confidence: 0.860109156842105
00:09:28.857 --> 00:09:30.807 that threaten children's physical
NOTE Confidence: 0.860109156842105
00:09:30.807 --> 00:09:32.759 and psychological well-being and
NOTE Confidence: 0.860109156842105
00:09:32.759 --> 00:09:35.273 their deviations from what you would
NOTE Confidence: 0.860109156842105

00:09:35.273 --> 00:09:36.923 expect kids who are typically.
NOTE Confidence: 0.860109156842105

00:09:36.930 --> 00:09:38.103 Developing should experience.
NOTE Confidence: 0.860109156842105

00:09:38.103 --> 00:09:41.527 I think of aces as being a a set
NOTE Confidence: 0.860109156842105

00:09:41.527 --> 00:09:43.676 of 10 markers that have been most
NOTE Confidence: 0.860109156842105

00:09:43.676 --> 00:09:46.866 well studied in the context of of
NOTE Confidence: 0.860109156842105

00:09:46.866 --> 00:09:48.738 adverse childhood experiences studies,
NOTE Confidence: 0.860109156842105

00:09:48.740 --> 00:09:51.680 and so those are sometimes overlapping
NOTE Confidence: 0.860109156842105

00:09:51.680 --> 00:09:53.660 with the adversities that we study,
NOTE Confidence: 0.860109156842105

00:09:53.660 --> 00:09:55.724 but tend to sometimes not include
NOTE Confidence: 0.860109156842105

00:09:55.724 --> 00:09:56.756 all of them.
NOTE Confidence: 0.860109156842105

00:09:56.760 --> 00:09:58.650 Some of the adversities we study
NOTE Confidence: 0.860109156842105

00:09:58.650 --> 00:09:59.595 could be stressors,
NOTE Confidence: 0.860109156842105

00:09:59.600 --> 00:10:01.856 some could be traumas and toxic.
NOTE Confidence: 0.860109156842105

00:10:01.860 --> 00:10:04.070 Stress to me really differentiates
NOTE Confidence: 0.860109156842105

00:10:04.070 --> 00:10:06.280 the context surrounding the stressors
NOTE Confidence: 0.860109156842105

00:10:06.343 --> 00:10:07.079 and traumas.

NOTE Confidence: 0.860109156842105
00:10:07.080 --> 00:10:08.598 The kids are going through and
NOTE Confidence: 0.860109156842105
00:10:08.598 --> 00:10:10.330 whether or not they have buffers,
NOTE Confidence: 0.860109156842105
00:10:10.330 --> 00:10:11.970 mainly those protective adults
NOTE Confidence: 0.860109156842105
00:10:11.970 --> 00:10:14.430 who can help buffer those effects
NOTE Confidence: 0.860109156842105
00:10:14.496 --> 00:10:16.286 of those stressors for them.
NOTE Confidence: 0.860109156842105
00:10:16.290 --> 00:10:17.925 So hopefully that's clarifying in
NOTE Confidence: 0.860109156842105
00:10:17.925 --> 00:10:20.254 terms of just getting a better feel
NOTE Confidence: 0.860109156842105
00:10:20.254 --> 00:10:22.150 for how I think about adversity.
NOTE Confidence: 0.860109156842105
00:10:22.150 --> 00:10:24.537 So in terms of talking about identifying
NOTE Confidence: 0.860109156842105
00:10:24.537 --> 00:10:26.290 sensitive periods in development.
NOTE Confidence: 0.860109156842105
00:10:26.290 --> 00:10:28.516 So one of the big questions that
NOTE Confidence: 0.860109156842105
00:10:28.516 --> 00:10:30.687 I think exists for the field is,
NOTE Confidence: 0.860109156842105
00:10:30.690 --> 00:10:31.336 you know,
NOTE Confidence: 0.860109156842105
00:10:31.336 --> 00:10:33.274 how does the timing of adversity
NOTE Confidence: 0.860109156842105
00:10:33.274 --> 00:10:35.543 shape risk for depression or any
NOTE Confidence: 0.860109156842105

00:10:35.543 --> 00:10:37.099 other adverse health outcome?
NOTE Confidence: 0.860109156842105

00:10:37.100 --> 00:10:38.619 And if you turn to the literature,
NOTE Confidence: 0.860109156842105

00:10:38.620 --> 00:10:40.426 you'll see that there's been a lot
NOTE Confidence: 0.860109156842105

00:10:40.426 --> 00:10:41.748 of different theories that have
NOTE Confidence: 0.860109156842105

00:10:41.748 --> 00:10:42.998 been proposed on this topic.
NOTE Confidence: 0.860109156842105

00:10:43.000 --> 00:10:45.816 So a basic model is an exposure model.
NOTE Confidence: 0.860109156842105

00:10:45.820 --> 00:10:48.022 And this model simply states that
NOTE Confidence: 0.860109156842105

00:10:48.022 --> 00:10:49.896 people who've been exposed to
NOTE Confidence: 0.860109156842105

00:10:49.896 --> 00:10:51.948 adversity have an increased risk of
NOTE Confidence: 0.860109156842105

00:10:51.948 --> 00:10:53.761 an adverse health outcome relative
NOTE Confidence: 0.860109156842105

00:10:53.761 --> 00:10:55.915 to people who are not exposed.
NOTE Confidence: 0.860109156842105

00:10:55.920 --> 00:10:57.828 There's also accumulation models,
NOTE Confidence: 0.860109156842105

00:10:57.828 --> 00:11:00.213 and in its simplest presentation,
NOTE Confidence: 0.860109156842105

00:11:00.220 --> 00:11:02.902 I'm showing here a basic dose
NOTE Confidence: 0.860109156842105

00:11:02.902 --> 00:11:03.796 response relationship.
NOTE Confidence: 0.860109156842105

00:11:03.800 --> 00:11:05.252 So the more adversity,

NOTE Confidence: 0.860109156842105
00:11:05.252 --> 00:11:07.430 the more at risk you become.
NOTE Confidence: 0.886890448
00:11:07.430 --> 00:11:08.990 Now that could be exposure
NOTE Confidence: 0.886890448
00:11:08.990 --> 00:11:10.550 to the same type repeatedly,
NOTE Confidence: 0.886890448
00:11:10.550 --> 00:11:13.910 or it could be different types of exposure.
NOTE Confidence: 0.886890448
00:11:13.910 --> 00:11:16.665 There's also recency models and
NOTE Confidence: 0.886890448
00:11:16.665 --> 00:11:18.544 recency models. Oops, sorry.
NOTE Confidence: 0.886890448
00:11:18.544 --> 00:11:20.866 Recency models focus on the time
NOTE Confidence: 0.886890448
00:11:20.866 --> 00:11:23.060 since the onset of the event.
NOTE Confidence: 0.792361311666667
00:11:25.830 --> 00:11:30.268 So a recency model says that your risk
NOTE Confidence: 0.792361311666667
00:11:30.268 --> 00:11:32.711 of an adverse health outcome is greatest
NOTE Confidence: 0.792361311666667
00:11:32.711 --> 00:11:34.688 shortly after you've been exposed,
NOTE Confidence: 0.792361311666667
00:11:34.690 --> 00:11:37.525 but then your risk decreases over time.
NOTE Confidence: 0.792361311666667
00:11:37.530 --> 00:11:39.118 And then finally there's
NOTE Confidence: 0.792361311666667
00:11:39.118 --> 00:11:40.706 a sensitive period model.
NOTE Confidence: 0.792361311666667
00:11:40.710 --> 00:11:42.822 And a sensitive period model is
NOTE Confidence: 0.792361311666667

00:11:42.822 --> 00:11:44.331 really asking, are there specific
NOTE Confidence: 0.792361311666667

00:11:44.331 --> 00:11:46.200 age stages in the course of the
NOTE Confidence: 0.792361311666667

00:11:46.254 --> 00:11:48.229 lifespan when our experience matters?
NOTE Confidence: 0.792361311666667

00:11:48.230 --> 00:11:51.990 More so over the years on and very
NOTE Confidence: 0.792361311666667

00:11:51.990 --> 00:11:54.809 symbolically marking my 100th publication.
NOTE Confidence: 0.792361311666667

00:11:54.810 --> 00:11:56.162 I love the symbolism.
NOTE Confidence: 0.792361311666667

00:11:56.162 --> 00:11:57.816 Of that, we've spent, you know,
NOTE Confidence: 0.792361311666667

00:11:57.816 --> 00:12:00.070 my group has spent a lot of time over
NOTE Confidence: 0.792361311666667

00:12:00.070 --> 00:12:02.175 the last however many years to try to
NOTE Confidence: 0.792361311666667

00:12:02.175 --> 00:12:03.865 disentangle which of these different
NOTE Confidence: 0.792361311666667

00:12:03.865 --> 00:12:06.000 theories might best apply to our data.
NOTE Confidence: 0.792361311666667

00:12:06.000 --> 00:12:08.191 And the reason that we've been doing that
NOTE Confidence: 0.792361311666667

00:12:08.191 --> 00:12:10.347 is because we think it has important
NOTE Confidence: 0.792361311666667

00:12:10.347 --> 00:12:11.928 implications for how we intervene.
NOTE Confidence: 0.792361311666667

00:12:11.930 --> 00:12:13.778 So if the data we find are
NOTE Confidence: 0.792361311666667

00:12:13.778 --> 00:12:15.519 consistent with an exposure model,

NOTE Confidence: 0.792361311666667
00:12:15.520 --> 00:12:17.040 that suggests that we can
NOTE Confidence: 0.792361311666667
00:12:17.040 --> 00:12:18.256 intervene at any time,
NOTE Confidence: 0.792361311666667
00:12:18.260 --> 00:12:19.972 and it suggests that our goal is to
NOTE Confidence: 0.792361311666667
00:12:19.972 --> 00:12:21.739 try to partition the population,
NOTE Confidence: 0.792361311666667
00:12:21.740 --> 00:12:22.583 so to speak,
NOTE Confidence: 0.792361311666667
00:12:22.583 --> 00:12:24.550 in terms of people who've been exposed
NOTE Confidence: 0.792361311666667
00:12:24.612 --> 00:12:26.490 in those who haven't been exposed.
NOTE Confidence: 0.792361311666667
00:12:26.490 --> 00:12:28.338 If our data are consistent with
NOTE Confidence: 0.792361311666667
00:12:28.338 --> 00:12:29.262 an accumulation model,
NOTE Confidence: 0.792361311666667
00:12:29.270 --> 00:12:31.702 then that points us to want to try
NOTE Confidence: 0.792361311666667
00:12:31.702 --> 00:12:34.223 to intervene early before people are
NOTE Confidence: 0.792361311666667
00:12:34.223 --> 00:12:36.067 accruing those adverse exposures.
NOTE Confidence: 0.792361311666667
00:12:36.070 --> 00:12:38.330 If it's a recency model,
NOTE Confidence: 0.792361311666667
00:12:38.330 --> 00:12:40.395 it suggests that we want to intervene
NOTE Confidence: 0.792361311666667
00:12:40.395 --> 00:12:40.690 quickly,
NOTE Confidence: 0.792361311666667

00:12:40.690 --> 00:12:42.909 but it might also suggest that maybe
NOTE Confidence: 0.792361311666667

00:12:42.909 --> 00:12:44.490 doing nothing would be OK too.
NOTE Confidence: 0.792361311666667

00:12:44.490 --> 00:12:46.680 These symptoms might naturally resolve
NOTE Confidence: 0.792361311666667

00:12:46.680 --> 00:12:48.870 or risk would resolve overtime,
NOTE Confidence: 0.792361311666667

00:12:48.870 --> 00:12:50.310 and if it's a sensitive period,
NOTE Confidence: 0.792361311666667

00:12:50.310 --> 00:12:52.362 model suggests that we want to
NOTE Confidence: 0.792361311666667

00:12:52.362 --> 00:12:54.250 intervene during or maybe shortly
NOTE Confidence: 0.792361311666667

00:12:54.250 --> 00:12:56.505 before those time periods of
NOTE Confidence: 0.792361311666667

00:12:56.505 --> 00:12:57.407 increased sensitivity.
NOTE Confidence: 0.792361311666667

00:12:57.410 --> 00:12:59.384 So we think about sensitive periods
NOTE Confidence: 0.792361311666667

00:12:59.384 --> 00:13:02.049 as being both high risk periods or
NOTE Confidence: 0.792361311666667

00:13:02.049 --> 00:13:04.184 windows of vulnerability when adverse
NOTE Confidence: 0.792361311666667

00:13:04.184 --> 00:13:06.140 life experiences are more harmful.
NOTE Confidence: 0.792361311666667

00:13:06.140 --> 00:13:08.012 But they could also be windows
NOTE Confidence: 0.792361311666667

00:13:08.012 --> 00:13:08.636 of opportunity,
NOTE Confidence: 0.792361311666667

00:13:08.640 --> 00:13:10.506 when enriching interventions

NOTE Confidence: 0.792361311666667

00:13:10.506 --> 00:13:12.994 could yield greater impact.

NOTE Confidence: 0.792361311666667

00:13:13.000 --> 00:13:14.980 So we've been working over the

NOTE Confidence: 0.792361311666667

00:13:14.980 --> 00:13:17.413 last several years to try to bring

NOTE Confidence: 0.792361311666667

00:13:17.413 --> 00:13:19.158 more research evidence to this.

NOTE Confidence: 0.792361311666667

00:13:19.160 --> 00:13:22.144 And my goal ultimately is to try to

NOTE Confidence: 0.792361311666667

00:13:22.144 --> 00:13:23.678 enable policymakers and clinicians

NOTE Confidence: 0.792361311666667

00:13:23.678 --> 00:13:25.814 to have better data to act,

NOTE Confidence: 0.792361311666667

00:13:25.820 --> 00:13:27.605 to know not just what to what

NOTE Confidence: 0.792361311666667

00:13:27.605 --> 00:13:29.120 to do to intervene,

NOTE Confidence: 0.792361311666667

00:13:29.120 --> 00:13:31.224 but specifically when and to try to do

NOTE Confidence: 0.792361311666667

00:13:31.224 --> 00:13:33.408 that on a high resolution timescale.

NOTE Confidence: 0.792361311666667

00:13:33.410 --> 00:13:34.974 So in other words,

NOTE Confidence: 0.792361311666667

00:13:34.974 --> 00:13:37.320 let's get more granular than just

NOTE Confidence: 0.792361311666667

00:13:37.397 --> 00:13:39.875 saying early or saying 1000 days.

NOTE Confidence: 0.792361311666667

00:13:39.880 --> 00:13:42.520 The 1st 1000 days rather.

NOTE Confidence: 0.792361311666667

00:13:42.520 --> 00:13:45.175 So I want to tell you a little bit
NOTE Confidence: 0.792361311666667

00:13:45.175 --> 00:13:47.600 more about the the first work that
NOTE Confidence: 0.792361311666667

00:13:47.600 --> 00:13:50.624 we did this was back when I was a
NOTE Confidence: 0.792361311666667

00:13:50.624 --> 00:13:52.740 postdoc and was a data set called
NOTE Confidence: 0.792361311666667

00:13:52.740 --> 00:13:54.777 AD Health that's now following it
NOTE Confidence: 0.792361311666667

00:13:54.777 --> 00:13:56.702 started studying kids when they
NOTE Confidence: 0.792361311666667

00:13:56.702 --> 00:13:58.380 were in middle school,
NOTE Confidence: 0.792361311666667

00:13:58.380 --> 00:14:00.480 and they've now been following
NOTE Confidence: 0.792361311666667

00:14:00.480 --> 00:14:01.740 them through adulthood.
NOTE Confidence: 0.792361311666667

00:14:01.740 --> 00:14:03.574 And the way that the data were
NOTE Confidence: 0.792361311666667

00:14:03.574 --> 00:14:05.632 recorded in AD health gave us the
NOTE Confidence: 0.792361311666667

00:14:05.632 --> 00:14:07.450 chance to ask this question about
NOTE Confidence: 0.792361311666667

00:14:07.509 --> 00:14:08.977 sensitive periods because people
NOTE Confidence: 0.792361311666667

00:14:08.977 --> 00:14:11.179 were asked were you exposed to
NOTE Confidence: 0.792361311666667

00:14:11.180 --> 00:14:13.130 physical abuse and sexual abuse?
NOTE Confidence: 0.792361311666667

00:14:13.130 --> 00:14:13.982 And if so,

NOTE Confidence: 0.792361311666667
00:14:13.982 --> 00:14:16.630 how old were you when that first happened?
NOTE Confidence: 0.792361311666667
00:14:16.630 --> 00:14:16.924 Now,
NOTE Confidence: 0.792361311666667
00:14:16.924 --> 00:14:18.688 I know there's measurement challenges here,
NOTE Confidence: 0.792361311666667
00:14:18.690 --> 00:14:20.450 and I'm going to come back to that.
NOTE Confidence: 0.859872807058824
00:14:20.450 --> 00:14:22.162 But just to give you a sort of
NOTE Confidence: 0.859872807058824
00:14:22.162 --> 00:14:23.723 intuition for how we've approached
NOTE Confidence: 0.859872807058824
00:14:23.723 --> 00:14:25.167 these sensitive period studies.
NOTE Confidence: 0.859872807058824
00:14:25.170 --> 00:14:27.725 So we code people based on whether
NOTE Confidence: 0.859872807058824
00:14:27.725 --> 00:14:29.862 they've been exposed to adversity
NOTE Confidence: 0.859872807058824
00:14:29.862 --> 00:14:31.810 during these different periods.
NOTE Confidence: 0.859872807058824
00:14:31.810 --> 00:14:34.154 And what we end up finding is that
NOTE Confidence: 0.859872807058824
00:14:34.154 --> 00:14:36.728 compared to people who were never exposed,
NOTE Confidence: 0.859872807058824
00:14:36.730 --> 00:14:39.136 kids who were exposed to physical
NOTE Confidence: 0.859872807058824
00:14:39.136 --> 00:14:41.223 abuse generally across the board
NOTE Confidence: 0.859872807058824
00:14:41.223 --> 00:14:43.689 have an increased risk of depression.
NOTE Confidence: 0.859872807058824

00:14:43.690 --> 00:14:46.246 Compared to kids who are unexposed,
NOTE Confidence: 0.859872807058824

00:14:46.250 --> 00:14:47.916 but when we start to compare kids
NOTE Confidence: 0.859872807058824

00:14:47.916 --> 00:14:49.987 based on the timing of their exposure,
NOTE Confidence: 0.859872807058824

00:14:49.990 --> 00:14:52.307 we do see some within group differences.
NOTE Confidence: 0.859872807058824

00:14:52.310 --> 00:14:54.078 So here we see that kids who are
NOTE Confidence: 0.859872807058824

00:14:54.078 --> 00:14:55.749 exposed as preschoolers for the first
NOTE Confidence: 0.859872807058824

00:14:55.749 --> 00:14:57.884 time have an increased risk of high
NOTE Confidence: 0.859872807058824

00:14:57.884 --> 00:14:59.479 depressive symptoms compared to kids
NOTE Confidence: 0.859872807058824

00:14:59.479 --> 00:15:02.272 who were exposed for the first time in
NOTE Confidence: 0.859872807058824

00:15:02.272 --> 00:15:04.730 adolescence and similarly for sexual abuse.
NOTE Confidence: 0.859872807058824

00:15:04.730 --> 00:15:06.615 We find generally across the
NOTE Confidence: 0.859872807058824

00:15:06.615 --> 00:15:08.123 board this increased risk,
NOTE Confidence: 0.859872807058824

00:15:08.130 --> 00:15:10.140 but here too these potential
NOTE Confidence: 0.859872807058824

00:15:10.140 --> 00:15:12.150 sensitive periods this was shifted
NOTE Confidence: 0.859872807058824

00:15:12.222 --> 00:15:14.455 to be latency or school age period.
NOTE Confidence: 0.859872807058824

00:15:14.460 --> 00:15:17.320 Relative to preschool or relative

NOTE Confidence: 0.859872807058824
00:15:17.320 --> 00:15:19.608 to the prepubertal period?
NOTE Confidence: 0.859872807058824
00:15:19.610 --> 00:15:21.775 Over the years we've searched
NOTE Confidence: 0.859872807058824
00:15:21.775 --> 00:15:23.507 broadly for sensitive periods,
NOTE Confidence: 0.859872807058824
00:15:23.510 --> 00:15:25.094 trying to see the level where
NOTE Confidence: 0.859872807058824
00:15:25.094 --> 00:15:25.886 they might operate.
NOTE Confidence: 0.859872807058824
00:15:25.890 --> 00:15:27.661 So the earliest work that we did
NOTE Confidence: 0.859872807058824
00:15:27.661 --> 00:15:29.170 was looking at childhood adversity
NOTE Confidence: 0.859872807058824
00:15:29.170 --> 00:15:30.895 in relation to depression and
NOTE Confidence: 0.859872807058824
00:15:30.895 --> 00:15:32.850 other forms of psychopathology.
NOTE Confidence: 0.859872807058824
00:15:32.850 --> 00:15:34.070 But then we started,
NOTE Confidence: 0.859872807058824
00:15:34.070 --> 00:15:35.900 this is really based on my
NOTE Confidence: 0.859872807058824
00:15:35.967 --> 00:15:37.329 interest in genetics,
NOTE Confidence: 0.859872807058824
00:15:37.330 --> 00:15:39.470 starting to think about these
NOTE Confidence: 0.859872807058824
00:15:39.470 --> 00:15:40.326 intermediate phenotypes.
NOTE Confidence: 0.859872807058824
00:15:40.330 --> 00:15:41.790 So in other words,
NOTE Confidence: 0.859872807058824

00:15:41.790 --> 00:15:44.418 are there these measures that we can
NOTE Confidence: 0.859872807058824

00:15:44.418 --> 00:15:47.282 get that are maybe more proximal to risk
NOTE Confidence: 0.859872807058824

00:15:47.282 --> 00:15:49.868 based on their timing of occurrence?
NOTE Confidence: 0.859872807058824

00:15:49.870 --> 00:15:50.992 In other words,
NOTE Confidence: 0.859872807058824

00:15:50.992 --> 00:15:52.862 these measures that are maybe
NOTE Confidence: 0.859872807058824

00:15:52.862 --> 00:15:55.069 capturing more of the biology of
NOTE Confidence: 0.859872807058824

00:15:55.069 --> 00:15:56.814 the the short-term effects of
NOTE Confidence: 0.859872807058824

00:15:56.814 --> 00:15:58.660 exposure to childhood adversity.
NOTE Confidence: 0.859872807058824

00:15:58.660 --> 00:16:00.496 And maybe these are the level,
NOTE Confidence: 0.859872807058824

00:16:00.500 --> 00:16:02.788 this is the level where we might see
NOTE Confidence: 0.859872807058824

00:16:02.788 --> 00:16:05.237 more signal and might be more readily
NOTE Confidence: 0.859872807058824

00:16:05.237 --> 00:16:07.052 able to identify sensitive periods.
NOTE Confidence: 0.859872807058824

00:16:07.060 --> 00:16:09.391 So we've looked at a number of
NOTE Confidence: 0.859872807058824

00:16:09.391 --> 00:16:10.390 different intermediate phenotypes
NOTE Confidence: 0.859872807058824

00:16:10.446 --> 00:16:12.266 and I'll tell you more about those.
NOTE Confidence: 0.859872807058824

00:16:12.270 --> 00:16:14.148 You know everything from how kids

NOTE Confidence: 0.859872807058824
00:16:14.148 --> 00:16:15.906 cope with stress to executive
NOTE Confidence: 0.859872807058824
00:16:15.906 --> 00:16:17.658 function and more recently,
NOTE Confidence: 0.859872807058824
00:16:17.660 --> 00:16:20.860 molecular targets.
NOTE Confidence: 0.859872807058824
00:16:20.860 --> 00:16:21.838 Throughout this work,
NOTE Confidence: 0.859872807058824
00:16:21.838 --> 00:16:24.120 we've also been focused on trying to
NOTE Confidence: 0.859872807058824
00:16:24.185 --> 00:16:26.435 develop and apply better analytic tools,
NOTE Confidence: 0.859872807058824
00:16:26.440 --> 00:16:27.952 particularly to analyze longitudinal
NOTE Confidence: 0.859872807058824
00:16:27.952 --> 00:16:30.220 data where you have these repeated
NOTE Confidence: 0.859872807058824
00:16:30.277 --> 00:16:32.287 measures of adversity and where
NOTE Confidence: 0.859872807058824
00:16:32.287 --> 00:16:33.895 sometimes they're highly correlated.
NOTE Confidence: 0.859872807058824
00:16:33.900 --> 00:16:36.007 So this is an approach that we've
NOTE Confidence: 0.859872807058824
00:16:36.007 --> 00:16:37.990 been working on with my colleague
NOTE Confidence: 0.859872807058824
00:16:37.990 --> 00:16:40.018 Andrew Smith out of the University
NOTE Confidence: 0.859872807058824
00:16:40.018 --> 00:16:42.017 of West of England in the UK.
NOTE Confidence: 0.859872807058824
00:16:42.020 --> 00:16:43.805 So it's called the structured
NOTE Confidence: 0.859872807058824

00:16:43.805 --> 00:16:45.233 life course modeling approach,
NOTE Confidence: 0.859872807058824

00:16:45.240 --> 00:16:48.198 or the slick comma and slick
NOTE Confidence: 0.859872807058824

00:16:48.198 --> 00:16:50.170 comma is incredibly cool.
NOTE Confidence: 0.859872807058824

00:16:50.170 --> 00:16:52.942 It works really well when you
NOTE Confidence: 0.859872807058824

00:16:52.942 --> 00:16:54.790 have repeated measures data.
NOTE Confidence: 0.859872807058824

00:16:54.790 --> 00:16:57.517 It can work when you have measures that are
NOTE Confidence: 0.859872807058824

00:16:57.517 --> 00:16:59.688 measured close in time or more distally,
NOTE Confidence: 0.859872807058824

00:16:59.690 --> 00:17:00.264 in time.
NOTE Confidence: 0.859872807058824

00:17:00.264 --> 00:17:02.560 What I also really like about it is
NOTE Confidence: 0.859872807058824

00:17:02.633 --> 00:17:05.089 that it forces you to have ideas up
NOTE Confidence: 0.859872807058824

00:17:05.089 --> 00:17:07.669 front about what you think you might see.
NOTE Confidence: 0.859872807058824

00:17:07.670 --> 00:17:10.190 So it's not just a a fishing expedition,
NOTE Confidence: 0.859872807058824

00:17:10.190 --> 00:17:12.234 but you have to have some idea
NOTE Confidence: 0.859872807058824

00:17:12.234 --> 00:17:14.350 about what you think might be the
NOTE Confidence: 0.859872807058824

00:17:14.350 --> 00:17:16.971 theory at play so that you can then
NOTE Confidence: 0.859872807058824

00:17:16.971 --> 00:17:18.966 encode your theories into testable

NOTE Confidence: 0.7911825933333333

00:17:18.970 --> 00:17:21.310 hypotheses. And So what the what?

NOTE Confidence: 0.7911825933333333

00:17:21.310 --> 00:17:23.518 The way that it works is that it

NOTE Confidence: 0.7911825933333333

00:17:23.518 --> 00:17:25.098 essentially allows you to identify

NOTE Confidence: 0.7911825933333333

00:17:25.098 --> 00:17:26.718 from the combination of theories

NOTE Confidence: 0.7911825933333333

00:17:26.718 --> 00:17:28.619 that you've identified beforehand,

NOTE Confidence: 0.7911825933333333

00:17:28.620 --> 00:17:30.840 which set explain the most amount

NOTE Confidence: 0.7911825933333333

00:17:30.840 --> 00:17:32.940 of variation in your outcome.

NOTE Confidence: 0.7911825933333333

00:17:32.940 --> 00:17:35.047 So it basically works in three stages.

NOTE Confidence: 0.7911825933333333

00:17:35.050 --> 00:17:37.174 So the first thing you do is you take

NOTE Confidence: 0.7911825933333333

00:17:37.174 --> 00:17:39.090 all of your theoretical models and

NOTE Confidence: 0.7911825933333333

00:17:39.090 --> 00:17:41.399 then you encode them into a variable.

NOTE Confidence: 0.7911825933333333

00:17:41.400 --> 00:17:43.068 So, for example, if you're going

NOTE Confidence: 0.7911825933333333

00:17:43.068 --> 00:17:44.939 to test a sensitive period model,

NOTE Confidence: 0.7911825933333333

00:17:44.940 --> 00:17:47.915 you code people based on being exposed

NOTE Confidence: 0.7911825933333333

00:17:47.915 --> 00:17:50.970 during that time period versus outside.

NOTE Confidence: 0.7911825933333333

00:17:50.970 --> 00:17:52.140 An accumulation model,
NOTE Confidence: 0.7911825933333333

00:17:52.140 --> 00:17:54.090 you're coding the number of
NOTE Confidence: 0.7911825933333333

00:17:54.090 --> 00:17:56.087 exposures and so on and so forth.
NOTE Confidence: 0.7911825933333333

00:17:56.090 --> 00:17:58.410 And these aren't the only life course models,
NOTE Confidence: 0.7911825933333333

00:17:58.410 --> 00:17:59.509 I should say, that you could test.
NOTE Confidence: 0.7911825933333333

00:17:59.510 --> 00:18:01.687 But there's other kinds of models too,
NOTE Confidence: 0.7911825933333333

00:18:01.690 --> 00:18:02.710 like mobility models.
NOTE Confidence: 0.7911825933333333

00:18:02.710 --> 00:18:05.090 So where a kid might have social
NOTE Confidence: 0.7911825933333333

00:18:05.161 --> 00:18:07.275 support and then they don't at the
NOTE Confidence: 0.7911825933333333

00:18:07.275 --> 00:18:09.827 next time and then it comes back again.
NOTE Confidence: 0.7911825933333333

00:18:09.830 --> 00:18:11.765 And So what you end up doing is you
NOTE Confidence: 0.7911825933333333

00:18:11.765 --> 00:18:13.678 take all of these variables and then
NOTE Confidence: 0.7911825933333333

00:18:13.678 --> 00:18:15.849 you bring them into a regression model.
NOTE Confidence: 0.7911825933333333

00:18:15.850 --> 00:18:17.509 And the way the regression model is
NOTE Confidence: 0.7911825933333333

00:18:17.509 --> 00:18:19.351 working is it's in a very sequential
NOTE Confidence: 0.7911825933333333

00:18:19.351 --> 00:18:20.696 fashion where you're trying to.

NOTE Confidence: 0.7911825933333333

00:18:20.700 --> 00:18:22.800 Identify the amount of variation

NOTE Confidence: 0.7911825933333333

00:18:22.800 --> 00:18:25.404 in your outcome or R-squared that

NOTE Confidence: 0.7911825933333333

00:18:25.404 --> 00:18:27.569 is explained by the greatest

NOTE Confidence: 0.7911825933333333

00:18:27.569 --> 00:18:29.301 combination of variables and.

NOTE Confidence: 0.7911825933333333

00:18:29.310 --> 00:18:31.582 So what you can see in this example

NOTE Confidence: 0.7911825933333333

00:18:31.582 --> 00:18:33.683 is where the model keeps fitting

NOTE Confidence: 0.7911825933333333

00:18:33.683 --> 00:18:35.885 until it gets to this combination

NOTE Confidence: 0.7911825933333333

00:18:35.959 --> 00:18:38.024 of both accumulation and exposure

NOTE Confidence: 0.7911825933333333

00:18:38.024 --> 00:18:40.089 during that third time period.

NOTE Confidence: 0.7911825933333333

00:18:40.090 --> 00:18:42.061 And So what you're able to also do is

NOTE Confidence: 0.7911825933333333

00:18:42.061 --> 00:18:43.950 you can look at these elbow plots,

NOTE Confidence: 0.7911825933333333

00:18:43.950 --> 00:18:46.020 which is what I'm showing here in the middle,

NOTE Confidence: 0.7911825933333333

00:18:46.020 --> 00:18:49.122 but then you can also evaluate

NOTE Confidence: 0.7911825933333333

00:18:49.122 --> 00:18:50.894 fit quantitatively using post

NOTE Confidence: 0.7911825933333333

00:18:50.894 --> 00:18:51.628 selective inference.

NOTE Confidence: 0.7911825933333333

00:18:51.628 --> 00:18:54.196 And so we've used the slick law
NOTE Confidence: 0.7911825933333333

00:18:54.196 --> 00:18:56.324 over the years and and also other
NOTE Confidence: 0.7911825933333333

00:18:56.324 --> 00:18:58.059 analysis to look at you know,
NOTE Confidence: 0.7911825933333333

00:18:58.060 --> 00:18:58.670 psychopathologies,
NOTE Confidence: 0.7911825933333333

00:18:58.670 --> 00:18:59.890 suicide risk,
NOTE Confidence: 0.7911825933333333

00:18:59.890 --> 00:19:03.550 sleep and and other more intermediate
NOTE Confidence: 0.7911825933333333

00:19:03.550 --> 00:19:04.160 phenotypes.
NOTE Confidence: 0.7911825933333333

00:19:04.160 --> 00:19:06.320 I want to tell you more about the
NOTE Confidence: 0.7911825933333333

00:19:06.320 --> 00:19:08.306 work that we've been doing where
NOTE Confidence: 0.7911825933333333

00:19:08.306 --> 00:19:10.308 we've been engaged in the most
NOTE Confidence: 0.7911825933333333

00:19:10.308 --> 00:19:12.804 work so far and that's related to
NOTE Confidence: 0.7911825933333333

00:19:12.804 --> 00:19:14.640 DNA methylation and epigenetics.
NOTE Confidence: 0.7911825933333333

00:19:14.640 --> 00:19:17.328 So these are chemical tags that are
NOTE Confidence: 0.7911825933333333

00:19:17.328 --> 00:19:19.380 essentially added to your genome.
NOTE Confidence: 0.7911825933333333

00:19:19.380 --> 00:19:22.754 They don't change how your DNA sequence.
NOTE Confidence: 0.7911825933333333

00:19:22.760 --> 00:19:24.590 Is is shaped, but they change.

NOTE Confidence: 0.7911825933333333

00:19:24.590 --> 00:19:26.870 They have the potential to change

NOTE Confidence: 0.7911825933333333

00:19:26.870 --> 00:19:28.390 how your genes function.

NOTE Confidence: 0.7911825933333333

00:19:28.390 --> 00:19:30.718 So they're one pathway through which

NOTE Confidence: 0.7911825933333333

00:19:30.718 --> 00:19:32.862 adversity might end up affecting

NOTE Confidence: 0.7911825933333333

00:19:32.862 --> 00:19:35.964 depression and other adverse health outcomes.

NOTE Confidence: 0.7911825933333333

00:19:35.970 --> 00:19:38.450 So one of the main studies that we've

NOTE Confidence: 0.7911825933333333

00:19:38.450 --> 00:19:41.265 been using for this is a study called alpac,

NOTE Confidence: 0.7911825933333333

00:19:41.270 --> 00:19:42.754 where the Avon Longitudinal

NOTE Confidence: 0.7911825933333333

00:19:42.754 --> 00:19:44.609 Study of Parents and Children,

NOTE Confidence: 0.7911825933333333

00:19:44.610 --> 00:19:45.996 which for any of you who might

NOTE Confidence: 0.7911825933333333

00:19:45.996 --> 00:19:47.049 be shopping a data set,

NOTE Confidence: 0.7911825933333333

00:19:47.050 --> 00:19:49.626 is a wonderful data set they have.

NOTE Confidence: 0.7911825933333333

00:19:49.630 --> 00:19:51.598 It's a birth cohort and the kids are,

NOTE Confidence: 0.7911825933333333

00:19:51.600 --> 00:19:52.866 the kids are now in their.

NOTE Confidence: 0.7911825933333333

00:19:52.870 --> 00:19:56.758 30 So there's you know 30 years of data.

NOTE Confidence: 0.7911825933333333

00:19:56.760 --> 00:19:59.420 They also collected as part of the
NOTE Confidence: 0.7911825933333333

00:19:59.420 --> 00:20:02.030 sub sample about 1000 mother child
NOTE Confidence: 0.7911825933333333

00:20:02.030 --> 00:20:04.355 pairs with DNA methylation data.
NOTE Confidence: 0.7911825933333333

00:20:04.360 --> 00:20:06.292 And so that was what we ended
NOTE Confidence: 0.7911825933333333

00:20:06.292 --> 00:20:07.120 up analyzing here.
NOTE Confidence: 0.7911825933333333

00:20:07.120 --> 00:20:09.040 So we had repeated measures of
NOTE Confidence: 0.7911825933333333

00:20:09.040 --> 00:20:10.320 exposure to different types
NOTE Confidence: 0.8950420525

00:20:10.381 --> 00:20:12.612 of adversity, things that were happening
NOTE Confidence: 0.8950420525

00:20:12.612 --> 00:20:15.289 within the household up through markers of
NOTE Confidence: 0.8950420525

00:20:15.289 --> 00:20:17.353 neighborhood disadvantage and we coded those
NOTE Confidence: 0.8950420525

00:20:17.353 --> 00:20:20.051 based on the timing of occurrence and then
NOTE Confidence: 0.8950420525

00:20:20.051 --> 00:20:22.804 we looked at these markers of adversity.
NOTE Confidence: 0.8950420525

00:20:22.804 --> 00:20:25.664 In relation to DNA methylation,
NOTE Confidence: 0.8950420525

00:20:25.670 --> 00:20:29.667 a type of epigenetic modification at about
NOTE Confidence: 0.8950420525

00:20:29.670 --> 00:20:32.868 500,000 different sites across the epigenome.
NOTE Confidence: 0.8950420525

00:20:32.870 --> 00:20:35.246 And so we applied the slickman and we asked,

NOTE Confidence: 0.8950420525

00:20:35.250 --> 00:20:37.452 you know, what's the best theoretical

NOTE Confidence: 0.8950420525

00:20:37.452 --> 00:20:39.670 model that might explain the variation

NOTE Confidence: 0.8950420525

00:20:39.670 --> 00:20:42.064 that we see in these epigenetic marks?

NOTE Confidence: 0.8950420525

00:20:42.070 --> 00:20:44.382 Is it accumulation, recency,

NOTE Confidence: 0.8950420525

00:20:44.382 --> 00:20:47.850 sensitive period or maybe a combination?

NOTE Confidence: 0.8950420525

00:20:47.850 --> 00:20:49.635 And what we did was we ended

NOTE Confidence: 0.8950420525

00:20:49.635 --> 00:20:50.750 up analyzing the data.

NOTE Confidence: 0.8950420525

00:20:50.750 --> 00:20:53.886 So on the X axis here is chromosome,

NOTE Confidence: 0.8950420525

00:20:53.890 --> 00:20:55.759 on the Y axis is the negative

NOTE Confidence: 0.8950420525

00:20:55.759 --> 00:20:57.170 log of the P value.

NOTE Confidence: 0.8950420525

00:20:57.170 --> 00:21:00.205 So it's basically the test

NOTE Confidence: 0.8950420525

00:21:00.205 --> 00:21:02.026 of statistical significance.

NOTE Confidence: 0.8950420525

00:21:02.030 --> 00:21:03.590 This is a Manhattan plot.

NOTE Confidence: 0.8950420525

00:21:03.590 --> 00:21:05.318 So ideally it looks like Manhattan

NOTE Confidence: 0.8950420525

00:21:05.318 --> 00:21:07.239 where you see these skyscraper like

NOTE Confidence: 0.8950420525

00:21:07.239 --> 00:21:09.029 effects emerging from the data.
NOTE Confidence: 0.8950420525

00:21:09.030 --> 00:21:10.470 You don't want a Dutch plot,
NOTE Confidence: 0.8950420525

00:21:10.470 --> 00:21:12.622 you don't want it to look flat because
NOTE Confidence: 0.8950420525

00:21:12.622 --> 00:21:14.862 these are basically regions where you're
NOTE Confidence: 0.8950420525

00:21:14.862 --> 00:21:16.917 seeing you know interesting signal.
NOTE Confidence: 0.8950420525

00:21:16.920 --> 00:21:21.470 So and then because we test literally
NOTE Confidence: 0.8950420525

00:21:21.470 --> 00:21:22.718 500,000 different associations,
NOTE Confidence: 0.8950420525

00:21:22.718 --> 00:21:24.798 we correct for that testing.
NOTE Confidence: 0.8950420525

00:21:24.800 --> 00:21:26.350 So anything that's considered to
NOTE Confidence: 0.8950420525

00:21:26.350 --> 00:21:28.503 be above that line is considered
NOTE Confidence: 0.8950420525

00:21:28.503 --> 00:21:30.138 epigenome wide significant.
NOTE Confidence: 0.8950420525

00:21:30.140 --> 00:21:32.908 And so we ended up finding 46 loci
NOTE Confidence: 0.8950420525

00:21:32.908 --> 00:21:34.940 that were distributed throughout
NOTE Confidence: 0.8950420525

00:21:34.940 --> 00:21:38.085 the epigenome as being potentially
NOTE Confidence: 0.8950420525

00:21:38.085 --> 00:21:39.972 impacted by adversity.
NOTE Confidence: 0.8950420525

00:21:39.980 --> 00:21:42.964 And when we dug deeper into these results,

NOTE Confidence: 0.8950420525
00:21:42.970 --> 00:21:45.040 what we ended up finding that
NOTE Confidence: 0.8950420525
00:21:45.040 --> 00:21:47.160 more than half of the loci.
NOTE Confidence: 0.8950420525
00:21:47.160 --> 00:21:48.720 We identified were influenced
NOTE Confidence: 0.8950420525
00:21:48.720 --> 00:21:50.280 by exposure to adversity,
NOTE Confidence: 0.8950420525
00:21:50.280 --> 00:21:52.968 specifically between ages three to five.
NOTE Confidence: 0.8950420525
00:21:52.970 --> 00:21:54.930 I actually didn't expect that we'd find
NOTE Confidence: 0.8950420525
00:21:54.930 --> 00:21:56.848 such strong evidence for sensitive periods.
NOTE Confidence: 0.8950420525
00:21:56.850 --> 00:21:58.750 I was thinking accumulation might
NOTE Confidence: 0.8950420525
00:21:58.750 --> 00:22:01.000 be as important, but it wasn't.
NOTE Confidence: 0.8950420525
00:22:01.000 --> 00:22:03.590 Here we actually didn't identify any loci.
NOTE Confidence: 0.8950420525
00:22:03.590 --> 00:22:05.515 What's also interesting is that
NOTE Confidence: 0.8950420525
00:22:05.515 --> 00:22:07.055 these DNA differences weren't
NOTE Confidence: 0.8950420525
00:22:07.055 --> 00:22:08.428 actually present at birth.
NOTE Confidence: 0.8950420525
00:22:08.430 --> 00:22:10.362 So we looked at whether they happened
NOTE Confidence: 0.8950420525
00:22:10.362 --> 00:22:12.108 in cord blood and they didn't.
NOTE Confidence: 0.8950420525

00:22:12.110 --> 00:22:13.880 And we've been now working.
NOTE Confidence: 0.8950420525

00:22:13.880 --> 00:22:15.651 We're probably about a month off or
NOTE Confidence: 0.8950420525

00:22:15.651 --> 00:22:17.339 so from wrapping up efforts around.
NOTE Confidence: 0.8950420525

00:22:17.340 --> 00:22:19.510 A meta analysis that we've been doing
NOTE Confidence: 0.8950420525

00:22:19.510 --> 00:22:22.117 to try to replicate and extend these
NOTE Confidence: 0.8950420525

00:22:22.117 --> 00:22:24.529 findings and other datasets to see
NOTE Confidence: 0.8950420525

00:22:24.603 --> 00:22:27.027 if they hold and by and large spoiler
NOTE Confidence: 0.8950420525

00:22:27.027 --> 00:22:29.338 alert is I think most of the data,
NOTE Confidence: 0.8950420525

00:22:29.340 --> 00:22:31.979 most of the evidence we are seeing
NOTE Confidence: 0.8950420525

00:22:31.979 --> 00:22:34.153 is for sensitive periods relative
NOTE Confidence: 0.8950420525

00:22:34.153 --> 00:22:36.077 to these other models.
NOTE Confidence: 0.8950420525

00:22:36.080 --> 00:22:38.915 One thing I also want to say too is,
NOTE Confidence: 0.8950420525

00:22:38.920 --> 00:22:39.280 you know,
NOTE Confidence: 0.8950420525

00:22:39.280 --> 00:22:40.720 one of the questions that I think is,
NOTE Confidence: 0.8950420525

00:22:40.720 --> 00:22:43.138 is really fair is these methods
NOTE Confidence: 0.8950420525

00:22:43.138 --> 00:22:44.870 seem really complicated, you know,

NOTE Confidence: 0.8950420525
00:22:44.870 --> 00:22:46.690 is is the juice worth the squeeze
NOTE Confidence: 0.8950420525
00:22:46.690 --> 00:22:47.519 so to speak?
NOTE Confidence: 0.8950420525
00:22:47.520 --> 00:22:49.480 Do you actually get more if you,
NOTE Confidence: 0.8950420525
00:22:49.480 --> 00:22:50.044 you know,
NOTE Confidence: 0.8950420525
00:22:50.044 --> 00:22:51.736 if you get all these repeated
NOTE Confidence: 0.8950420525
00:22:51.736 --> 00:22:54.221 measures and you model it with this
NOTE Confidence: 0.8950420525
00:22:54.221 --> 00:22:55.340 sophisticated modeling approach,
NOTE Confidence: 0.8950420525
00:22:55.340 --> 00:22:56.552 the answer is yes.
NOTE Confidence: 0.8950420525
00:22:56.552 --> 00:22:58.770 So we are able to identify with
NOTE Confidence: 0.8950420525
00:22:58.770 --> 00:23:01.038 the slick ma more signal that we
NOTE Confidence: 0.8950420525
00:23:01.038 --> 00:23:03.254 would have missed had we just
NOTE Confidence: 0.8950420525
00:23:03.254 --> 00:23:05.129 coded people as exposed versus.
NOTE Confidence: 0.8950420525
00:23:05.130 --> 00:23:05.547 Unexposed.
NOTE Confidence: 0.8950420525
00:23:05.547 --> 00:23:08.049 So I think hopefully you hear
NOTE Confidence: 0.8950420525
00:23:08.049 --> 00:23:10.218 a message here of you know
NOTE Confidence: 0.8950420525

00:23:10.218 --> 00:23:12.178 it is worth it to do this
NOTE Confidence: 0.872977993103448

00:23:12.260 --> 00:23:15.188 more repeated measures data collection and
NOTE Confidence: 0.872977993103448

00:23:15.188 --> 00:23:18.049 use these these more complicated methods.
NOTE Confidence: 0.831294540833333

00:23:20.060 --> 00:23:21.590 We've also been working and this
NOTE Confidence: 0.831294540833333

00:23:21.590 --> 00:23:23.320 is work led by Alex Lucier,
NOTE Confidence: 0.831294540833333

00:23:23.320 --> 00:23:26.086 a postdoc in my group, because we have
NOTE Confidence: 0.831294540833333

00:23:26.086 --> 00:23:28.696 longitudinal methylation data in alpac.
NOTE Confidence: 0.831294540833333

00:23:28.700 --> 00:23:31.796 So not just looking at methylation at age 7,
NOTE Confidence: 0.831294540833333

00:23:31.800 --> 00:23:34.452 but he's also been expanding it
NOTE Confidence: 0.831294540833333

00:23:34.452 --> 00:23:37.059 to methylation at age 15 to 17.
NOTE Confidence: 0.831294540833333

00:23:37.060 --> 00:23:39.112 So we can understand these patterns
NOTE Confidence: 0.831294540833333

00:23:39.112 --> 00:23:41.239 of stability and change across time.
NOTE Confidence: 0.831294540833333

00:23:41.240 --> 00:23:43.305 And these, these data are really interesting
NOTE Confidence: 0.831294540833333

00:23:43.305 --> 00:23:45.643 and I'm just going to present a a little
NOTE Confidence: 0.831294540833333

00:23:45.643 --> 00:23:47.558 bit of what we've been finding here.
NOTE Confidence: 0.831294540833333

00:23:47.560 --> 00:23:49.440 So what I'm showing here.

NOTE Confidence: 0.831294540833333

00:23:49.440 --> 00:23:53.148 Are the 46 low side that I showed before,

NOTE Confidence: 0.831294540833333

00:23:53.150 --> 00:23:55.250 so these were the top low side

NOTE Confidence: 0.831294540833333

00:23:55.250 --> 00:23:56.770 that we identified at age 7.

NOTE Confidence: 0.831294540833333

00:23:56.770 --> 00:23:59.434 Now we're looking at them at age 15 and

NOTE Confidence: 0.831294540833333

00:23:59.434 --> 00:24:02.181 saying do we still see them being you

NOTE Confidence: 0.831294540833333

00:24:02.181 --> 00:24:03.925 know largely important and generally

NOTE Confidence: 0.831294540833333

00:24:03.925 --> 00:24:06.549 what we find is that the direction of

NOTE Confidence: 0.831294540833333

00:24:06.550 --> 00:24:11.323 change or the the pattern of direction

NOTE Confidence: 0.831294540833333

00:24:11.323 --> 00:24:13.561 of association is generally the same

NOTE Confidence: 0.831294540833333

00:24:13.561 --> 00:24:16.250 but the results are attenuating slightly.

NOTE Confidence: 0.831294540833333

00:24:16.250 --> 00:24:18.690 So had we run an epigenome Wide Association

NOTE Confidence: 0.831294540833333

00:24:18.690 --> 00:24:21.177 study we wouldn't have identified these.

NOTE Confidence: 0.831294540833333

00:24:21.180 --> 00:24:24.780 Game low Sci at age 15.

NOTE Confidence: 0.831294540833333

00:24:24.780 --> 00:24:26.980 What we're finding actually now

NOTE Confidence: 0.831294540833333

00:24:26.980 --> 00:24:30.679 is a new set of loci at age 15,

NOTE Confidence: 0.831294540833333

00:24:30.680 --> 00:24:33.686 so 41 in total and interesting.
NOTE Confidence: 0.831294540833333

00:24:33.690 --> 00:24:35.660 These are also underscoring the
NOTE Confidence: 0.831294540833333

00:24:35.660 --> 00:24:37.630 importance of this early childhood
NOTE Confidence: 0.831294540833333

00:24:37.690 --> 00:24:39.657 of this age three to five period.
NOTE Confidence: 0.831294540833333

00:24:39.660 --> 00:24:41.500 So we didn't see them before at 7,
NOTE Confidence: 0.831294540833333

00:24:41.500 --> 00:24:43.376 but now we're starting to see them.
NOTE Confidence: 0.831294540833333

00:24:43.380 --> 00:24:46.372 So sort of interesting to think about maybe
NOTE Confidence: 0.831294540833333

00:24:46.372 --> 00:24:48.840 potential sleeper effects or latency effects.
NOTE Confidence: 0.831294540833333

00:24:48.840 --> 00:24:50.140 We don't really know what's
NOTE Confidence: 0.831294540833333

00:24:50.140 --> 00:24:51.180 necessarily going on here,
NOTE Confidence: 0.831294540833333

00:24:51.180 --> 00:24:52.625 but we're we're starting to
NOTE Confidence: 0.831294540833333

00:24:52.625 --> 00:24:54.360 try to unpack this and ask,
NOTE Confidence: 0.831294540833333

00:24:54.360 --> 00:24:56.340 you know what might be giving rise to these?
NOTE Confidence: 0.831294540833333

00:24:56.340 --> 00:24:57.496 These patterns.
NOTE Confidence: 0.831294540833333

00:24:57.496 --> 00:24:59.230 We've also looked,
NOTE Confidence: 0.831294540833333

00:24:59.230 --> 00:24:59.744 you know,

NOTE Confidence: 0.831294540833333
00:24:59.744 --> 00:25:01.543 at these data and we can find
NOTE Confidence: 0.831294540833333
00:25:01.543 --> 00:25:04.041 so far at least six different
NOTE Confidence: 0.831294540833333
00:25:04.041 --> 00:25:05.781 patterns of adversity associated
NOTE Confidence: 0.831294540833333
00:25:05.781 --> 00:25:07.749 methylation differences across time.
NOTE Confidence: 0.831294540833333
00:25:07.750 --> 00:25:09.534 And these patterns essentially
NOTE Confidence: 0.831294540833333
00:25:09.534 --> 00:25:11.318 reflect differences that emerge
NOTE Confidence: 0.831294540833333
00:25:11.318 --> 00:25:13.530 early versus later in development,
NOTE Confidence: 0.831294540833333
00:25:13.530 --> 00:25:15.340 those that happen among people
NOTE Confidence: 0.831294540833333
00:25:15.340 --> 00:25:17.150 who are exposed to adversity.
NOTE Confidence: 0.831294540833333
00:25:17.150 --> 00:25:19.034 But what's interesting here is we
NOTE Confidence: 0.831294540833333
00:25:19.034 --> 00:25:20.676 see differences based on whether
NOTE Confidence: 0.831294540833333
00:25:20.676 --> 00:25:22.326 you were exposed during the
NOTE Confidence: 0.831294540833333
00:25:22.326 --> 00:25:24.322 sensitive period we think might be
NOTE Confidence: 0.831294540833333
00:25:24.322 --> 00:25:25.867 impactful versus outside of it.
NOTE Confidence: 0.831294540833333
00:25:25.870 --> 00:25:27.475 And there's some cases where
NOTE Confidence: 0.831294540833333

00:25:27.475 --> 00:25:28.759 people who were exposed.
NOTE Confidence: 0.831294540833333

00:25:28.760 --> 00:25:30.860 During the sensitive period,
NOTE Confidence: 0.831294540833333

00:25:30.860 --> 00:25:34.010 look like people who were unexposed.
NOTE Confidence: 0.831294540833333

00:25:34.010 --> 00:25:36.380 And then we're also seeing
NOTE Confidence: 0.831294540833333

00:25:36.380 --> 00:25:38.750 differences in in age differences
NOTE Confidence: 0.831294540833333

00:25:38.835 --> 00:25:41.050 based on age and assessment.
NOTE Confidence: 0.831294540833333

00:25:41.050 --> 00:25:42.786 And I think this is really interesting
NOTE Confidence: 0.831294540833333

00:25:42.786 --> 00:25:44.314 in terms of thinking about again
NOTE Confidence: 0.831294540833333

00:25:44.314 --> 00:25:46.343 a kind of is the juice worth the
NOTE Confidence: 0.831294540833333

00:25:46.343 --> 00:25:47.708 squeeze question of you know,
NOTE Confidence: 0.831294540833333

00:25:47.710 --> 00:25:49.894 is it worth us getting these repeated
NOTE Confidence: 0.831294540833333

00:25:49.894 --> 00:25:51.844 measures of methylation and and I think
NOTE Confidence: 0.831294540833333

00:25:51.844 --> 00:25:53.820 at least from what we're seeing it is.
NOTE Confidence: 0.88670415

00:25:57.280 --> 00:26:02.080 So. Umm. You might also be wondering,
NOTE Confidence: 0.88670415

00:26:02.080 --> 00:26:03.848 OK, this is interesting,
NOTE Confidence: 0.88670415

00:26:03.848 --> 00:26:05.174 adversaries predicting methylation,

NOTE Confidence: 0.88670415

00:26:05.180 --> 00:26:06.491 but what's actually

NOTE Confidence: 0.88670415

00:26:06.491 --> 00:26:08.676 happening in terms of health?

NOTE Confidence: 0.88670415

00:26:08.680 --> 00:26:10.360 And Alex, who's a postdoc,

NOTE Confidence: 0.88670415

00:26:10.360 --> 00:26:11.698 as I mentioned, and Brooke Smith,

NOTE Confidence: 0.88670415

00:26:11.700 --> 00:26:13.636 who was a data analyst in my group,

NOTE Confidence: 0.88670415

00:26:13.640 --> 00:26:16.196 have been doing a mediation analysis,

NOTE Confidence: 0.88670415

00:26:16.200 --> 00:26:18.180 mediation analysis to essentially

NOTE Confidence: 0.88670415

00:26:18.180 --> 00:26:21.150 ask is adversity leading to changes

NOTE Confidence: 0.88670415

00:26:21.222 --> 00:26:23.442 in these DNA methylation signatures

NOTE Confidence: 0.88670415

00:26:23.442 --> 00:26:26.460 that then predict risk for depression

NOTE Confidence: 0.88670415

00:26:26.460 --> 00:26:28.536 and what we're looking at here.

NOTE Confidence: 0.88670415

00:26:28.540 --> 00:26:30.100 So we could basically calculate

NOTE Confidence: 0.88670415

00:26:30.100 --> 00:26:31.660 all of these different paths.

NOTE Confidence: 0.88670415

00:26:31.660 --> 00:26:34.072 Using regression and what we're looking

NOTE Confidence: 0.88670415

00:26:34.072 --> 00:26:37.412 for is to try to identify, you know,

NOTE Confidence: 0.88670415

00:26:37.412 --> 00:26:40.009 how much of the association is explained
NOTE Confidence: 0.88670415

00:26:40.009 --> 00:26:42.488 by these methylation signatures.
NOTE Confidence: 0.88670415

00:26:42.490 --> 00:26:45.343 And So what we found overall is so far
NOTE Confidence: 0.88670415

00:26:45.343 --> 00:26:48.834 70 total mediators that were identified
NOTE Confidence: 0.88670415

00:26:48.834 --> 00:26:51.310 across these different adversities,
NOTE Confidence: 0.88670415

00:26:51.310 --> 00:26:55.059 corresponding to 667 unique CPG
NOTE Confidence: 0.88670415

00:26:55.059 --> 00:26:58.174 sites that that each explained
NOTE Confidence: 0.88670415

00:26:58.174 --> 00:27:02.030 between 10 and 71% of the variation.
NOTE Confidence: 0.88670415

00:27:02.030 --> 00:27:04.190 In risk for depression.
NOTE Confidence: 0.88670415

00:27:04.190 --> 00:27:06.446 So you can see that there's differences in,
NOTE Confidence: 0.88670415

00:27:06.450 --> 00:27:07.144 you know,
NOTE Confidence: 0.88670415

00:27:07.144 --> 00:27:09.226 how much is being explained across
NOTE Confidence: 0.88670415

00:27:09.226 --> 00:27:11.199 these different types of adversities.
NOTE Confidence: 0.88670415

00:27:11.200 --> 00:27:13.848 And then what I think is maybe really
NOTE Confidence: 0.88670415

00:27:13.848 --> 00:27:15.803 interesting is that the epigenetic
NOTE Confidence: 0.88670415

00:27:15.803 --> 00:27:18.659 adaptation that we're seeing is not uniform.

NOTE Confidence: 0.88670415

00:27:18.660 --> 00:27:21.916 So when we plot the direction of these

NOTE Confidence: 0.88670415

00:27:21.916 --> 00:27:23.966 different associations and whether

NOTE Confidence: 0.88670415

00:27:23.966 --> 00:27:26.290 adversities associated with increased

NOTE Confidence: 0.88670415

00:27:26.290 --> 00:27:28.614 methylation or decreased methylation,

NOTE Confidence: 0.88670415

00:27:28.620 --> 00:27:31.176 we're seeing a lot of variation.

NOTE Confidence: 0.88670415

00:27:31.180 --> 00:27:33.424 So what this is essentially showing

NOTE Confidence: 0.88670415

00:27:33.424 --> 00:27:36.511 is that most of what we're finding

NOTE Confidence: 0.88670415

00:27:36.511 --> 00:27:39.041 are effects where methylation changes

NOTE Confidence: 0.88670415

00:27:39.041 --> 00:27:41.519 are actually protective against.

NOTE Confidence: 0.88670415

00:27:41.520 --> 00:27:43.290 Depression.

NOTE Confidence: 0.88670415

00:27:43.290 --> 00:27:46.050 So adversity is associated with a

NOTE Confidence: 0.88670415

00:27:46.050 --> 00:27:47.890 methylation change that protects

NOTE Confidence: 0.88670415

00:27:47.960 --> 00:27:50.328 people from developing depression.

NOTE Confidence: 0.88670415

00:27:50.330 --> 00:27:52.310 We've also been finding that some

NOTE Confidence: 0.88670415

00:27:52.310 --> 00:27:54.323 sites that we've identified are linked

NOTE Confidence: 0.88670415

00:27:54.323 --> 00:27:56.237 to cortical development and and other

NOTE Confidence: 0.88670415

00:27:56.237 --> 00:27:58.184 aspects of brain development and we've

NOTE Confidence: 0.88670415

00:27:58.184 --> 00:28:00.561 been able to replicate some of the

NOTE Confidence: 0.88670415

00:28:00.561 --> 00:28:03.016 LOCI and some independent cohorts.

NOTE Confidence: 0.88670415

00:28:03.020 --> 00:28:05.043 And I think this is another area

NOTE Confidence: 0.88670415

00:28:05.043 --> 00:28:07.108 that's just ripe for investigation

NOTE Confidence: 0.88670415

00:28:07.108 --> 00:28:08.809 because it's counterintuitive.

NOTE Confidence: 0.88670415

00:28:08.810 --> 00:28:10.833 I think most of us would expect

NOTE Confidence: 0.88670415

00:28:10.833 --> 00:28:12.588 that these things are, you know,

NOTE Confidence: 0.88670415

00:28:12.588 --> 00:28:13.176 more deleterious.

NOTE Confidence: 0.88670415

00:28:13.176 --> 00:28:14.940 But it might be that we're,

NOTE Confidence: 0.88670415

00:28:14.940 --> 00:28:17.299 our bodies are trying to reach homeostasis.

NOTE Confidence: 0.88670415

00:28:17.300 --> 00:28:19.806 And so we're some of the damage

NOTE Confidence: 0.88670415

00:28:19.806 --> 00:28:21.776 that's done is protective and

NOTE Confidence: 0.88670415

00:28:21.776 --> 00:28:24.224 some of it is also harmful.

NOTE Confidence: 0.88670415

00:28:24.230 --> 00:28:25.868 I also want to just kind of

NOTE Confidence: 0.88670415

00:28:25.868 --> 00:28:27.636 zoom out and sort of share with

NOTE Confidence: 0.88670415

00:28:27.636 --> 00:28:29.561 you the last set of work around

NOTE Confidence: 0.88670415

00:28:29.561 --> 00:28:31.667 sensitive periods in terms of this,

NOTE Confidence: 0.88670415

00:28:31.670 --> 00:28:33.890 this review paper that John Schaefer,

NOTE Confidence: 0.88670415

00:28:33.890 --> 00:28:36.542 who's a a postdoc collaborator of

NOTE Confidence: 0.88670415

00:28:36.542 --> 00:28:39.436 mine and I worked on around the

NOTE Confidence: 0.88670415

00:28:39.436 --> 00:28:41.168 question of sensitive periods.

NOTE Confidence: 0.88670415

00:28:41.170 --> 00:28:44.194 So I've been really surprised that the

NOTE Confidence: 0.88670415

00:28:44.194 --> 00:28:47.178 data we've been seeing for methylation

NOTE Confidence: 0.88670415

00:28:47.178 --> 00:28:50.394 has been so consistent for sensitive

NOTE Confidence: 0.88670415

00:28:50.394 --> 00:28:52.225 periods and we wanted to know you know,

NOTE Confidence: 0.88670415

00:28:52.230 --> 00:28:53.570 does this really extend to.

NOTE Confidence: 0.88670415

00:28:53.570 --> 00:28:54.406 Other domains.

NOTE Confidence: 0.88670415

00:28:54.406 --> 00:28:57.332 So we ended up publishing this review.

NOTE Confidence: 0.88670415

00:28:57.340 --> 00:28:59.428 It just came out a couple weeks ago

NOTE Confidence: 0.88670415

00:28:59.428 --> 00:29:01.719 looking at a range of different outcomes.
NOTE Confidence: 0.88670415

00:29:01.720 --> 00:29:03.302 So psychopathology,
NOTE Confidence: 0.88670415

00:29:03.302 --> 00:29:04.884 neuroimaging, epigenetics,
NOTE Confidence: 0.88670415

00:29:04.884 --> 00:29:07.257 psychophysiology and behavior.
NOTE Confidence: 0.88670415

00:29:07.260 --> 00:29:08.780 It's defined by our doc,
NOTE Confidence: 0.88670415

00:29:08.780 --> 00:29:11.120 the research domain criteria.
NOTE Confidence: 0.88670415

00:29:11.120 --> 00:29:15.376 So we found 118 unique cross-sectional
NOTE Confidence: 0.88670415

00:29:15.376 --> 00:29:17.040 observational studies.
NOTE Confidence: 0.88670415

00:29:17.040 --> 00:29:18.865 Most of these studies focused
NOTE Confidence: 0.88670415

00:29:18.865 --> 00:29:20.690 on psychopathology as at least
NOTE Confidence: 0.88670415

00:29:20.759 --> 00:29:22.099 one of their outcomes,
NOTE Confidence: 0.88670415

00:29:22.100 --> 00:29:25.480 so depressive symptoms or diagnosis
NOTE Confidence: 0.88670415

00:29:25.480 --> 00:29:29.584 or other PTSD or so on and so forth.
NOTE Confidence: 0.728458122307692

00:29:29.590 --> 00:29:31.372 Other ones we're looking at are
NOTE Confidence: 0.728458122307692

00:29:31.372 --> 00:29:33.439 other R DOC domains and a handful.
NOTE Confidence: 0.728458122307692

00:29:33.440 --> 00:29:36.807 We're also looking at more neural indices.

NOTE Confidence: 0.728458122307692

00:29:36.810 --> 00:29:39.466 What we ended up finding was that most

NOTE Confidence: 0.728458122307692

00:29:39.466 --> 00:29:41.989 studies did report a timing difference.

NOTE Confidence: 0.728458122307692

00:29:41.990 --> 00:29:44.559 In other words, they reported that kids

NOTE Confidence: 0.728458122307692

00:29:44.559 --> 00:29:46.630 exposed to maltreatment in one time

NOTE Confidence: 0.728458122307692

00:29:46.630 --> 00:29:48.448 period had an increased risk relative

NOTE Confidence: 0.728458122307692

00:29:48.448 --> 00:29:50.905 to kids exposed at another time period.

NOTE Confidence: 0.728458122307692

00:29:50.910 --> 00:29:52.974 But when we dug deeper into

NOTE Confidence: 0.728458122307692

00:29:52.974 --> 00:29:54.006 these timing effects,

NOTE Confidence: 0.728458122307692

00:29:54.010 --> 00:29:56.722 we essentially didn't find any consistent

NOTE Confidence: 0.728458122307692

00:29:56.722 --> 00:29:59.750 evidence for peak periods of vulnerability.

NOTE Confidence: 0.728458122307692

00:29:59.750 --> 00:30:03.751 So it's not as though we saw three to five or

NOTE Confidence: 0.728458122307692

00:30:03.751 --> 00:30:07.297 6 to 8 is this time period of vulnerability.

NOTE Confidence: 0.728458122307692

00:30:07.300 --> 00:30:09.220 This was also very surprising.

NOTE Confidence: 0.728458122307692

00:30:09.220 --> 00:30:12.328 So we didn't see that these

NOTE Confidence: 0.728458122307692

00:30:12.328 --> 00:30:14.296 biological markers, you know,

NOTE Confidence: 0.728458122307692

00:30:14.296 --> 00:30:17.537 the neural indices or other indicators were
NOTE Confidence: 0.728458122307692

00:30:17.537 --> 00:30:21.095 any better able than the symptom measures
NOTE Confidence: 0.728458122307692

00:30:21.100 --> 00:30:23.900 to identify potential sensitive periods.
NOTE Confidence: 0.728458122307692

00:30:23.900 --> 00:30:25.635 We also didn't see any
NOTE Confidence: 0.728458122307692

00:30:25.635 --> 00:30:27.370 differences based on study rigor.
NOTE Confidence: 0.728458122307692

00:30:27.370 --> 00:30:30.018 So if you had a study where you
NOTE Confidence: 0.728458122307692

00:30:30.018 --> 00:30:32.020 compared your models to accumulation
NOTE Confidence: 0.728458122307692

00:30:32.020 --> 00:30:34.960 models or you were a larger study,
NOTE Confidence: 0.728458122307692

00:30:34.960 --> 00:30:37.016 we didn't see any differences based on that.
NOTE Confidence: 0.728458122307692

00:30:37.020 --> 00:30:40.615 Neither we did interestingly share find
NOTE Confidence: 0.728458122307692

00:30:40.615 --> 00:30:43.650 that there were similarities in terms of
NOTE Confidence: 0.728458122307692

00:30:43.650 --> 00:30:45.706 internalizing and externalizing symptoms.
NOTE Confidence: 0.728458122307692

00:30:45.710 --> 00:30:48.510 They did share peak periods of vulnerability,
NOTE Confidence: 0.728458122307692

00:30:48.510 --> 00:30:51.107 but specific types of maltreatment did not.
NOTE Confidence: 0.728458122307692

00:30:51.110 --> 00:30:54.122 So this maybe speaks to maltreatment
NOTE Confidence: 0.728458122307692

00:30:54.122 --> 00:30:56.713 types having potential different impacts

NOTE Confidence: 0.728458122307692
00:30:56.713 --> 00:30:59.258 with respect to sensitive periods.
NOTE Confidence: 0.728458122307692
00:30:59.260 --> 00:31:02.092 Studies were also split with respect
NOTE Confidence: 0.728458122307692
00:31:02.092 --> 00:31:05.080 with respect to sex differences.
NOTE Confidence: 0.728458122307692
00:31:05.080 --> 00:31:08.518 We also generally saw a huge risk of bias.
NOTE Confidence: 0.728458122307692
00:31:08.520 --> 00:31:10.767 Most of these studies were under powered
NOTE Confidence: 0.728458122307692
00:31:10.767 --> 00:31:13.912 and so as a result we ended up providing
NOTE Confidence: 0.728458122307692
00:31:13.912 --> 00:31:16.353 a set of recommendations at the end
NOTE Confidence: 0.728458122307692
00:31:16.353 --> 00:31:18.600 that we hope will guide future studies,
NOTE Confidence: 0.728458122307692
00:31:18.600 --> 00:31:20.052 including but not limited
NOTE Confidence: 0.728458122307692
00:31:20.052 --> 00:31:21.867 to issues of of measurement,
NOTE Confidence: 0.728458122307692
00:31:21.870 --> 00:31:24.035 which I'm going to turn to next.
NOTE Confidence: 0.728458122307692
00:31:24.035 --> 00:31:27.835 So in terms of the issue of measurement,
NOTE Confidence: 0.728458122307692
00:31:27.840 --> 00:31:30.342 so this is something I've been
NOTE Confidence: 0.728458122307692
00:31:30.342 --> 00:31:32.699 frustrated about for for a while.
NOTE Confidence: 0.728458122307692
00:31:32.700 --> 00:31:34.956 So we know that current measures
NOTE Confidence: 0.728458122307692

00:31:34.956 --> 00:31:36.460 of childhood adversity have
NOTE Confidence: 0.728458122307692

00:31:36.531 --> 00:31:38.539 some pretty serious limitations.
NOTE Confidence: 0.728458122307692

00:31:38.540 --> 00:31:41.240 So what we most often do in in research
NOTE Confidence: 0.728458122307692

00:31:41.240 --> 00:31:43.341 studies is we ask people and this
NOTE Confidence: 0.728458122307692

00:31:43.341 --> 00:31:45.390 is also in clinical practice too.
NOTE Confidence: 0.728458122307692

00:31:45.390 --> 00:31:46.774 We ask people retrospectively.
NOTE Confidence: 0.728458122307692

00:31:46.774 --> 00:31:49.970 So when you're an adult or maybe an an
NOTE Confidence: 0.728458122307692

00:31:49.970 --> 00:31:52.357 adolescent, we ask you how old you know,
NOTE Confidence: 0.728458122307692

00:31:52.360 --> 00:31:54.195 did you experience these adverse
NOTE Confidence: 0.728458122307692

00:31:54.195 --> 00:31:55.296 events and so.
NOTE Confidence: 0.728458122307692

00:31:55.300 --> 00:31:56.585 You might imagine that there's
NOTE Confidence: 0.728458122307692

00:31:56.585 --> 00:31:58.160 a lot of potential bias here.
NOTE Confidence: 0.728458122307692

00:31:58.160 --> 00:31:59.201 So, you know,
NOTE Confidence: 0.728458122307692

00:31:59.201 --> 00:32:00.936 it's subjects to people's memory.
NOTE Confidence: 0.728458122307692

00:32:00.940 --> 00:32:03.175 It's subject to whether they're
NOTE Confidence: 0.728458122307692

00:32:03.175 --> 00:32:04.963 comfortable disclosing what are

NOTE Confidence: 0.728458122307692
00:32:04.963 --> 00:32:06.678 oftentimes very painful events.
NOTE Confidence: 0.728458122307692
00:32:06.680 --> 00:32:08.884 So it's no surprise that, you know,
NOTE Confidence: 0.728458122307692
00:32:08.884 --> 00:32:10.816 there might be bias in these
NOTE Confidence: 0.728458122307692
00:32:10.816 --> 00:32:11.460 retrospective measures.
NOTE Confidence: 0.728458122307692
00:32:11.460 --> 00:32:13.056 The other thing that we can also
NOTE Confidence: 0.728458122307692
00:32:13.056 --> 00:32:14.580 do is go prospectively.
NOTE Confidence: 0.728458122307692
00:32:14.580 --> 00:32:16.940 So we can ask parents,
NOTE Confidence: 0.728458122307692
00:32:16.940 --> 00:32:17.824 oftentimes moms,
NOTE Confidence: 0.728458122307692
00:32:17.824 --> 00:32:20.034 whether their child is exposed
NOTE Confidence: 0.728458122307692
00:32:20.034 --> 00:32:22.119 to certain kinds of events.
NOTE Confidence: 0.728458122307692
00:32:22.120 --> 00:32:24.418 But this is another area where
NOTE Confidence: 0.728458122307692
00:32:24.418 --> 00:32:25.567 there's potential problems.
NOTE Confidence: 0.728458122307692
00:32:25.570 --> 00:32:28.363 So moms might not want to talk
NOTE Confidence: 0.728458122307692
00:32:28.363 --> 00:32:30.420 about painful events or events,
NOTE Confidence: 0.728458122307692
00:32:30.420 --> 00:32:32.840 particularly when she's the perpetrator
NOTE Confidence: 0.728458122307692

00:32:32.840 --> 00:32:35.260 of those sources of adversity.
NOTE Confidence: 0.728458122307692

00:32:35.260 --> 00:32:35.880 For adolescence,
NOTE Confidence: 0.728458122307692

00:32:35.880 --> 00:32:37.430 there might be some adversities
NOTE Confidence: 0.728458122307692

00:32:37.430 --> 00:32:38.920 that parents don't know about,
NOTE Confidence: 0.728458122307692

00:32:38.920 --> 00:32:40.952 and I think This is why it's maybe
NOTE Confidence: 0.728458122307692

00:32:40.952 --> 00:32:42.854 there's no surprise that when you
NOTE Confidence: 0.728458122307692

00:32:42.854 --> 00:32:44.852 ask both children and their parents,
NOTE Confidence: 0.918896138333333

00:32:44.860 --> 00:32:46.834 you see very low levels of
NOTE Confidence: 0.918896138333333

00:32:46.834 --> 00:32:48.720 agreement between the two of them.
NOTE Confidence: 0.918896138333333

00:32:48.720 --> 00:32:50.105 Another source of data would
NOTE Confidence: 0.918896138333333

00:32:50.105 --> 00:32:51.213 be the official reports,
NOTE Confidence: 0.918896138333333

00:32:51.220 --> 00:32:52.876 like health and Social service records,
NOTE Confidence: 0.918896138333333

00:32:52.880 --> 00:32:55.190 but we know that those are also
NOTE Confidence: 0.918896138333333

00:32:55.190 --> 00:32:56.790 dramatic undercounts of people's.
NOTE Confidence: 0.918896138333333

00:32:56.790 --> 00:32:59.706 Exposure to adversity and they probably
NOTE Confidence: 0.918896138333333

00:32:59.706 --> 00:33:03.218 only get about 30% of all true cases.

NOTE Confidence: 0.918896138333333

00:33:03.218 --> 00:33:05.476 So, so sort of borne from these

NOTE Confidence: 0.918896138333333

00:33:05.476 --> 00:33:07.174 frustrations and a very serendipitous

NOTE Confidence: 0.918896138333333

00:33:07.174 --> 00:33:09.514 conversation I had with a colleague

NOTE Confidence: 0.918896138333333

00:33:09.514 --> 00:33:11.757 that I started thinking about baby

NOTE Confidence: 0.918896138333333

00:33:11.757 --> 00:33:14.102 teeth and this idea that maybe baby

NOTE Confidence: 0.918896138333333

00:33:14.110 --> 00:33:16.636 teeth could serve as fossilized records

NOTE Confidence: 0.918896138333333

00:33:16.636 --> 00:33:19.210 of people's early life experiences.

NOTE Confidence: 0.918896138333333

00:33:19.210 --> 00:33:21.570 So we published this paper.

NOTE Confidence: 0.918896138333333

00:33:21.570 --> 00:33:24.030 Back in 2020 in biological psychiatry,

NOTE Confidence: 0.918896138333333

00:33:24.030 --> 00:33:25.675 where we outline this hypothesis

NOTE Confidence: 0.918896138333333

00:33:25.675 --> 00:33:28.335 and so we said we basically put

NOTE Confidence: 0.918896138333333

00:33:28.335 --> 00:33:30.690 forward this teeth conceptual model,

NOTE Confidence: 0.918896138333333

00:33:30.690 --> 00:33:33.735 this idea that teeth are as encoding

NOTE Confidence: 0.918896138333333

00:33:33.735 --> 00:33:35.610 experiences to transform health.

NOTE Confidence: 0.918896138333333

00:33:35.610 --> 00:33:37.213 And So what we said is that

NOTE Confidence: 0.918896138333333

00:33:37.213 --> 00:33:38.470 you have this exposure,
NOTE Confidence: 0.9188961383333333

00:33:38.470 --> 00:33:40.878 so a psychosocial stressor,
NOTE Confidence: 0.9188961383333333

00:33:40.878 --> 00:33:43.888 it disrupts some biological process.
NOTE Confidence: 0.9188961383333333

00:33:43.890 --> 00:33:46.641 It leaves behind an imprint of that
NOTE Confidence: 0.9188961383333333

00:33:46.641 --> 00:33:48.290 biological process somewhere and
NOTE Confidence: 0.9188961383333333

00:33:48.290 --> 00:33:50.290 that that predicts health outcomes.
NOTE Confidence: 0.9188961383333333

00:33:50.290 --> 00:33:51.568 And So what we were saying.
NOTE Confidence: 0.9188961383333333

00:33:51.570 --> 00:33:53.358 That essentially primary tooth
NOTE Confidence: 0.9188961383333333

00:33:53.358 --> 00:33:56.040 development might be altered as a
NOTE Confidence: 0.9188961383333333

00:33:56.112 --> 00:33:58.674 result of this adversity and that could
NOTE Confidence: 0.9188961383333333

00:33:58.674 --> 00:34:01.050 then therefore be captured in baby
NOTE Confidence: 0.9188961383333333

00:34:01.119 --> 00:34:03.669 teeth that started forming prenatally.
NOTE Confidence: 0.9188961383333333

00:34:03.670 --> 00:34:05.574 So let me tell you a little
NOTE Confidence: 0.9188961383333333

00:34:05.574 --> 00:34:06.850 bit more about teeth.
NOTE Confidence: 0.9188961383333333

00:34:06.850 --> 00:34:09.066 I could talk an entire talk about teeth
NOTE Confidence: 0.9188961383333333

00:34:09.066 --> 00:34:11.090 because they're like absolutely fascinating,

NOTE Confidence: 0.918896138333333
00:34:11.090 --> 00:34:12.326 but in the interest of time,
NOTE Confidence: 0.918896138333333
00:34:12.330 --> 00:34:13.306 I won't do that.
NOTE Confidence: 0.918896138333333
00:34:13.306 --> 00:34:13.550 But,
NOTE Confidence: 0.918896138333333
00:34:13.550 --> 00:34:15.718 but just to give you a little bit more of a
NOTE Confidence: 0.918896138333333
00:34:15.718 --> 00:34:17.563 flavor for teeth and in how cool they are.
NOTE Confidence: 0.918896138333333
00:34:17.570 --> 00:34:17.849 So,
NOTE Confidence: 0.918896138333333
00:34:17.849 --> 00:34:20.830 so most of us are born with 20 primary teeth.
NOTE Confidence: 0.918896138333333
00:34:20.830 --> 00:34:21.958 These are our baby.
NOTE Confidence: 0.918896138333333
00:34:21.958 --> 00:34:23.086 Death or milk teeth,
NOTE Confidence: 0.918896138333333
00:34:23.090 --> 00:34:25.070 they start forming during about the
NOTE Confidence: 0.918896138333333
00:34:25.070 --> 00:34:27.355 second trimester of life and then they
NOTE Confidence: 0.918896138333333
00:34:27.355 --> 00:34:29.167 continue forming over the first few
NOTE Confidence: 0.918896138333333
00:34:29.167 --> 00:34:31.567 years of life and then around age 5 or six,
NOTE Confidence: 0.918896138333333
00:34:31.570 --> 00:34:32.362 they fall out.
NOTE Confidence: 0.918896138333333
00:34:32.362 --> 00:34:33.946 They're the only part of our
NOTE Confidence: 0.918896138333333

00:34:33.946 --> 00:34:35.438 body that actually falls out
NOTE Confidence: 0.9188961383333333

00:34:35.438 --> 00:34:37.190 as part of a healthy process.
NOTE Confidence: 0.9188961383333333

00:34:37.190 --> 00:34:38.882 And then they're replaced
NOTE Confidence: 0.9188961383333333

00:34:38.882 --> 00:34:40.574 by 32 permanent teeth.
NOTE Confidence: 0.9188961383333333

00:34:40.580 --> 00:34:42.840 And those form postnatally up
NOTE Confidence: 0.9188961383333333

00:34:42.840 --> 00:34:44.648 through about mid adolescence.
NOTE Confidence: 0.9188961383333333

00:34:44.650 --> 00:34:47.415 And so teeth are also amazing because
NOTE Confidence: 0.9188961383333333

00:34:47.415 --> 00:34:50.245 they record the timing of their
NOTE Confidence: 0.9188961383333333

00:34:50.245 --> 00:34:52.100 incremental growth, so the outside.
NOTE Confidence: 0.9188961383333333

00:34:52.100 --> 00:34:53.990 Part of our tooth is called the
NOTE Confidence: 0.9188961383333333

00:34:54.055 --> 00:34:56.059 Crown and that's comprised of the
NOTE Confidence: 0.9188961383333333

00:34:56.059 --> 00:34:57.746 enamel that we hopefully brush
NOTE Confidence: 0.9188961383333333

00:34:57.746 --> 00:34:59.504 twice a day in our underlying
NOTE Confidence: 0.9188961383333333

00:34:59.504 --> 00:35:01.814 dentin and then the pulp and root.
NOTE Confidence: 0.9188961383333333

00:35:01.814 --> 00:35:03.950 And the way that teeth develop
NOTE Confidence: 0.9188961383333333

00:35:04.031 --> 00:35:06.211 is really very much reminiscent

NOTE Confidence: 0.918896138333333

00:35:06.211 --> 00:35:08.391 of a circadian like process.

NOTE Confidence: 0.918896138333333

00:35:08.400 --> 00:35:10.248 So there are cells called ameloblasts

NOTE Confidence: 0.918896138333333

00:35:10.248 --> 00:35:12.483 and those are the cells that form

NOTE Confidence: 0.918896138333333

00:35:12.483 --> 00:35:14.053 enamel and they're basically acting

NOTE Confidence: 0.918896138333333

00:35:14.053 --> 00:35:16.169 in a in a circadian like process

NOTE Confidence: 0.918896138333333

00:35:16.169 --> 00:35:18.348 to lay down this matrix of enamel.

NOTE Confidence: 0.918896138333333

00:35:18.348 --> 00:35:22.059 And as every sort of passage of time goes on,

NOTE Confidence: 0.918896138333333

00:35:22.060 --> 00:35:22.954 it leaves.

NOTE Confidence: 0.918896138333333

00:35:22.954 --> 00:35:25.636 Behind an imprint of that recording.

NOTE Confidence: 0.918896138333333

00:35:25.640 --> 00:35:27.768 So this is similar to the way that

NOTE Confidence: 0.918896138333333

00:35:27.768 --> 00:35:29.688 tree rings develop and that every

NOTE Confidence: 0.918896138333333

00:35:29.688 --> 00:35:31.343 year of the trees development

NOTE Confidence: 0.918896138333333

00:35:31.343 --> 00:35:33.159 you see a new ring recorded.

NOTE Confidence: 0.918896138333333

00:35:33.160 --> 00:35:35.855 Well, our teeth have very similar lines.

NOTE Confidence: 0.918896138333333

00:35:35.860 --> 00:35:37.732 There are sets of lines that

NOTE Confidence: 0.918896138333333

00:35:37.732 --> 00:35:38.980 correspond to about weekly
NOTE Confidence: 0.831379243636364

00:35:39.039 --> 00:35:41.975 development, and then lines that also
NOTE Confidence: 0.831379243636364

00:35:41.975 --> 00:35:44.230 correspond to about daily development.
NOTE Confidence: 0.831379243636364

00:35:44.230 --> 00:35:46.309 What's also unique is that this recording
NOTE Confidence: 0.831379243636364

00:35:46.309 --> 00:35:48.410 of development is found across evolution,
NOTE Confidence: 0.831379243636364

00:35:48.410 --> 00:35:51.105 so we see similar tree similar rings
NOTE Confidence: 0.831379243636364

00:35:51.105 --> 00:35:54.149 within the teeth across different species.
NOTE Confidence: 0.831379243636364

00:35:54.150 --> 00:35:56.467 And teeth also record insults or disruptions
NOTE Confidence: 0.831379243636364

00:35:56.467 --> 00:35:58.470 that happen during their development.
NOTE Confidence: 0.831379243636364

00:35:58.470 --> 00:36:00.603 So in this way we can think about teeth
NOTE Confidence: 0.831379243636364

00:36:00.603 --> 00:36:03.236 just telling us not just whether a stressor
NOTE Confidence: 0.831379243636364

00:36:03.236 --> 00:36:05.428 occurred in development but potentially when.
NOTE Confidence: 0.831379243636364

00:36:05.430 --> 00:36:07.846 And this can happen on both a low
NOTE Confidence: 0.831379243636364

00:36:07.846 --> 00:36:09.818 resolution time scale where you can
NOTE Confidence: 0.831379243636364

00:36:09.818 --> 00:36:12.232 see for example these white marks or
NOTE Confidence: 0.831379243636364

00:36:12.232 --> 00:36:14.172 these enamel hypoplasia or concentrated

NOTE Confidence: 0.831379243636364

00:36:14.172 --> 00:36:16.098 to those two central incisors.

NOTE Confidence: 0.831379243636364

00:36:16.098 --> 00:36:18.306 So that maybe speaks to something

NOTE Confidence: 0.831379243636364

00:36:18.306 --> 00:36:20.631 that was happening as those particular

NOTE Confidence: 0.831379243636364

00:36:20.631 --> 00:36:21.789 teeth were forming,

NOTE Confidence: 0.831379243636364

00:36:21.790 --> 00:36:23.702 but then you can get even more granular

NOTE Confidence: 0.831379243636364

00:36:23.702 --> 00:36:25.629 and look really at a high resolution.

NOTE Confidence: 0.831379243636364

00:36:25.630 --> 00:36:27.667 Time scale and leverage what we know

NOTE Confidence: 0.831379243636364

00:36:27.667 --> 00:36:29.759 about those tree ring like structures.

NOTE Confidence: 0.831379243636364

00:36:29.760 --> 00:36:30.996 So you could take a tooth,

NOTE Confidence: 0.831379243636364

00:36:31.000 --> 00:36:32.360 cut it in half,

NOTE Confidence: 0.831379243636364

00:36:32.360 --> 00:36:34.400 take thin sections of the tooth,

NOTE Confidence: 0.831379243636364

00:36:34.400 --> 00:36:35.620 put it on a slide,

NOTE Confidence: 0.831379243636364

00:36:35.620 --> 00:36:37.786 put it under a microscope and

NOTE Confidence: 0.831379243636364

00:36:37.786 --> 00:36:39.795 look at the incremental formation

NOTE Confidence: 0.831379243636364

00:36:39.795 --> 00:36:41.759 of that tooth development.

NOTE Confidence: 0.831379243636364

00:36:41.760 --> 00:36:44.082 And one of the lines that you can look
NOTE Confidence: 0.831379243636364

00:36:44.082 --> 00:36:46.956 at among others is this neonatal line.
NOTE Confidence: 0.831379243636364

00:36:46.960 --> 00:36:49.298 So this is a line that actually
NOTE Confidence: 0.831379243636364

00:36:49.298 --> 00:36:51.158 differentiates the time of our birth.
NOTE Confidence: 0.831379243636364

00:36:51.160 --> 00:36:53.040 So it differentiates prenatal enamel
NOTE Confidence: 0.831379243636364

00:36:53.040 --> 00:36:55.639 from post Natal enamel and it's often.
NOTE Confidence: 0.831379243636364

00:36:55.640 --> 00:36:57.698 Is in studies of archaeology and
NOTE Confidence: 0.831379243636364

00:36:57.698 --> 00:37:00.583 anthropology as as a way of differentiating
NOTE Confidence: 0.831379243636364

00:37:00.583 --> 00:37:02.507 those different time periods.
NOTE Confidence: 0.831379243636364

00:37:02.510 --> 00:37:03.610 But then there's also other
NOTE Confidence: 0.831379243636364

00:37:03.610 --> 00:37:04.890 lines that you can look at,
NOTE Confidence: 0.831379243636364

00:37:04.890 --> 00:37:06.400 and these are generally referred
NOTE Confidence: 0.831379243636364

00:37:06.400 --> 00:37:07.608 to as stress lines.
NOTE Confidence: 0.831379243636364

00:37:07.610 --> 00:37:09.270 Whether they happen prenatally,
NOTE Confidence: 0.831379243636364

00:37:09.270 --> 00:37:10.930 anthropologists don't really know.
NOTE Confidence: 0.831379243636364

00:37:10.930 --> 00:37:12.232 So this is part of what

NOTE Confidence: 0.831379243636364
00:37:12.232 --> 00:37:13.855 we're trying to look at, Umm.
NOTE Confidence: 0.831379243636364
00:37:13.855 --> 00:37:16.630 And also these lines occur,
NOTE Confidence: 0.831379243636364
00:37:16.630 --> 00:37:18.534 as I said, at different time scales.
NOTE Confidence: 0.831379243636364
00:37:18.540 --> 00:37:18.950 So.
NOTE Confidence: 0.831379243636364
00:37:18.950 --> 00:37:22.230 So you can get pretty granular with teeth.
NOTE Confidence: 0.831379243636364
00:37:22.230 --> 00:37:24.442 Most of the work that's been done
NOTE Confidence: 0.831379243636364
00:37:24.442 --> 00:37:27.070 so far around teeth as markers of
NOTE Confidence: 0.831379243636364
00:37:27.070 --> 00:37:29.085 stress really focus on Physiology,
NOTE Confidence: 0.831379243636364
00:37:29.090 --> 00:37:30.566 physiological stressors,
NOTE Confidence: 0.831379243636364
00:37:30.566 --> 00:37:32.780 so disease, malnutrition.
NOTE Confidence: 0.831379243636364
00:37:32.780 --> 00:37:34.868 The process of our birth and the recording
NOTE Confidence: 0.831379243636364
00:37:34.868 --> 00:37:37.578 of that neonatal line and most of this
NOTE Confidence: 0.831379243636364
00:37:37.578 --> 00:37:38.998 happens in archaeological populations
NOTE Confidence: 0.831379243636364
00:37:39.058 --> 00:37:40.668 and there is a little bit that's
NOTE Confidence: 0.831379243636364
00:37:40.668 --> 00:37:44.390 going on in more modern populations.
NOTE Confidence: 0.831379243636364

00:37:44.390 --> 00:37:46.010 But what I think is interesting
NOTE Confidence: 0.831379243636364

00:37:46.010 --> 00:37:47.902 is that there are primate studies
NOTE Confidence: 0.831379243636364

00:37:47.902 --> 00:37:50.152 that have shown that teeth might
NOTE Confidence: 0.831379243636364

00:37:50.152 --> 00:37:51.350 record psychosocial stress.
NOTE Confidence: 0.831379243636364

00:37:51.350 --> 00:37:53.870 So Simona Lemmers is a postdoc in my group.
NOTE Confidence: 0.831379243636364

00:37:53.870 --> 00:37:55.518 She's a biological anthropologist.
NOTE Confidence: 0.831379243636364

00:37:55.518 --> 00:37:58.462 She's been doing some of this work
NOTE Confidence: 0.831379243636364

00:37:58.462 --> 00:38:00.457 and essentially shows that different
NOTE Confidence: 0.831379243636364

00:38:00.457 --> 00:38:03.029 kinds of events that happen within.
NOTE Confidence: 0.831379243636364

00:38:03.030 --> 00:38:04.170 For her study,
NOTE Confidence: 0.831379243636364

00:38:04.170 --> 00:38:05.310 it was mandrills.
NOTE Confidence: 0.831379243636364

00:38:05.310 --> 00:38:08.454 So you can see these stress lines appearing
NOTE Confidence: 0.831379243636364

00:38:08.454 --> 00:38:11.310 shortly after the occurrence of a stressor.
NOTE Confidence: 0.831379243636364

00:38:11.310 --> 00:38:12.612 So, for example,
NOTE Confidence: 0.831379243636364

00:38:12.612 --> 00:38:14.348 you separate the offspring.
NOTE Confidence: 0.831379243636364

00:38:14.350 --> 00:38:18.048 From the mother and you'll see that the

NOTE Confidence: 0.831379243636364
00:38:18.048 --> 00:38:20.946 baby tooth will show evidence of that
NOTE Confidence: 0.831379243636364
00:38:20.946 --> 00:38:24.076 calendar timed event appearing in the tooth.
NOTE Confidence: 0.831379243636364
00:38:24.080 --> 00:38:27.120 So it sort of suggests that maybe there
NOTE Confidence: 0.831379243636364
00:38:27.120 --> 00:38:29.841 is something going on about teeth
NOTE Confidence: 0.831379243636364
00:38:29.841 --> 00:38:32.196 recording these early life stressors.
NOTE Confidence: 0.831379243636364
00:38:32.200 --> 00:38:35.080 So now going from, OK,
NOTE Confidence: 0.831379243636364
00:38:35.080 --> 00:38:36.676 so maybe early life stress can
NOTE Confidence: 0.831379243636364
00:38:36.676 --> 00:38:37.740 get recorded in teeth.
NOTE Confidence: 0.831379243636364
00:38:37.740 --> 00:38:38.002 Well,
NOTE Confidence: 0.831379243636364
00:38:38.002 --> 00:38:39.574 what about teeth as a marker
NOTE Confidence: 0.831379243636364
00:38:39.574 --> 00:38:40.360 of mental health?
NOTE Confidence: 0.890789982
00:38:40.360 --> 00:38:43.204 Well, there's been work mostly in
NOTE Confidence: 0.890789982
00:38:43.204 --> 00:38:45.481 environmental health showing that pesticides,
NOTE Confidence: 0.890789982
00:38:45.481 --> 00:38:48.148 things that you can ingest or inhale,
NOTE Confidence: 0.890789982
00:38:48.150 --> 00:38:49.540 those can appear in teeth.
NOTE Confidence: 0.890789982

00:38:49.540 --> 00:38:51.175 And those are also indicative
NOTE Confidence: 0.890789982

00:38:51.175 --> 00:38:52.483 of mental health risks.
NOTE Confidence: 0.890789982

00:38:52.490 --> 00:38:54.113 So for example,
NOTE Confidence: 0.890789982

00:38:54.113 --> 00:38:57.359 studies have focused on heavy metals
NOTE Confidence: 0.890789982

00:38:57.359 --> 00:39:00.535 and lead like lead and and other things,
NOTE Confidence: 0.890789982

00:39:00.535 --> 00:39:02.390 and showing risk for a range of.
NOTE Confidence: 0.890789982

00:39:02.390 --> 00:39:03.923 Different psychiatric disorders,
NOTE Confidence: 0.890789982

00:39:03.923 --> 00:39:05.456 autism spectrum disorder,
NOTE Confidence: 0.890789982

00:39:05.460 --> 00:39:08.448 schizophrenia and the like.
NOTE Confidence: 0.890789982

00:39:08.450 --> 00:39:10.262 But there really hasn't been a
NOTE Confidence: 0.890789982

00:39:10.262 --> 00:39:12.022 lot that's been done specifically
NOTE Confidence: 0.890789982

00:39:12.022 --> 00:39:14.186 in child psychiatry, I think,
NOTE Confidence: 0.890789982

00:39:14.186 --> 00:39:15.926 and in depression in particular.
NOTE Confidence: 0.890789982

00:39:15.930 --> 00:39:18.306 And I think this is where teeth Perot
NOTE Confidence: 0.890789982

00:39:18.306 --> 00:39:20.786 may provide this enormous and unique
NOTE Confidence: 0.890789982

00:39:20.786 --> 00:39:22.606 opportunity for primary prevention.

NOTE Confidence: 0.890789982

00:39:22.610 --> 00:39:24.714 So if you think back to the beginning

NOTE Confidence: 0.890789982

00:39:24.714 --> 00:39:27.082 of the talk where I shared that 20 to

NOTE Confidence: 0.890789982

00:39:27.082 --> 00:39:29.531 40% of people will have had a first

NOTE Confidence: 0.890789982

00:39:29.531 --> 00:39:31.389 onset of depression before age 21.

NOTE Confidence: 0.890789982

00:39:31.390 --> 00:39:33.366 And you think about what I just shared

NOTE Confidence: 0.890789982

00:39:33.366 --> 00:39:35.941 in terms of the timing of tooth formation

NOTE Confidence: 0.890789982

00:39:35.941 --> 00:39:37.289 happening early in development,

NOTE Confidence: 0.890789982

00:39:37.290 --> 00:39:38.838 you can think about every time.

NOTE Confidence: 0.890789982

00:39:38.840 --> 00:39:41.227 Point when teeth are lost as a

NOTE Confidence: 0.890789982

00:39:41.227 --> 00:39:42.940 potential opportunity to intervene.

NOTE Confidence: 0.890789982

00:39:42.940 --> 00:39:44.848 So the first time happens when

NOTE Confidence: 0.890789982

00:39:44.848 --> 00:39:46.120 teeth are naturally exfoliated,

NOTE Confidence: 0.890789982

00:39:46.120 --> 00:39:48.157 they fall out of your mouth around

NOTE Confidence: 0.890789982

00:39:48.157 --> 00:39:50.280 school age, you know, 5 or 6.

NOTE Confidence: 0.890789982

00:39:50.280 --> 00:39:52.555 Instead of throwing those in the garbage,

NOTE Confidence: 0.890789982

00:39:52.560 --> 00:39:54.891 what if they were potentially used to
NOTE Confidence: 0.890789982

00:39:54.891 --> 00:39:57.090 help guide primary prevention efforts?
NOTE Confidence: 0.890789982

00:39:57.090 --> 00:39:57.690 Similarly,
NOTE Confidence: 0.890789982

00:39:57.690 --> 00:40:00.090 second opportunity comes for
NOTE Confidence: 0.890789982

00:40:00.090 --> 00:40:01.290 orthodontic work.
NOTE Confidence: 0.890789982

00:40:01.290 --> 00:40:04.091 So in the US about 20% of kids will
NOTE Confidence: 0.890789982

00:40:04.091 --> 00:40:05.933 have at least one tooth extracted
NOTE Confidence: 0.890789982

00:40:05.933 --> 00:40:07.996 to make room for those braces.
NOTE Confidence: 0.890789982

00:40:08.000 --> 00:40:09.776 Here too is another opportunity and
NOTE Confidence: 0.890789982

00:40:09.776 --> 00:40:12.248 also at a time where we start to
NOTE Confidence: 0.890789982

00:40:12.248 --> 00:40:14.090 see upkicks in risk for depression
NOTE Confidence: 0.890789982

00:40:14.158 --> 00:40:16.228 and other forms of psychopathology.
NOTE Confidence: 0.890789982

00:40:16.230 --> 00:40:18.204 And then the last time comes with
NOTE Confidence: 0.890789982

00:40:18.204 --> 00:40:19.530 wisdom tooth removal surgery.
NOTE Confidence: 0.890789982

00:40:19.530 --> 00:40:22.694 So this also happens in that transition
NOTE Confidence: 0.890789982

00:40:22.694 --> 00:40:25.129 to from adolescence to adulthood,

NOTE Confidence: 0.890789982

00:40:25.130 --> 00:40:26.516 kids are starting to live outside

NOTE Confidence: 0.890789982

00:40:26.516 --> 00:40:27.209 of the home.

NOTE Confidence: 0.890789982

00:40:27.210 --> 00:40:29.121 For the first time we start to

NOTE Confidence: 0.890789982

00:40:29.121 --> 00:40:30.970 see psychosis and other major

NOTE Confidence: 0.890789982

00:40:30.970 --> 00:40:31.938 psychiatric disorders.

NOTE Confidence: 0.890789982

00:40:31.940 --> 00:40:33.991 So here imagine again if we might

NOTE Confidence: 0.890789982

00:40:33.991 --> 00:40:36.672 be able to use these as potential

NOTE Confidence: 0.890789982

00:40:36.672 --> 00:40:38.837 biomarkers in combination with other

NOTE Confidence: 0.890789982

00:40:38.837 --> 00:40:41.338 tools to help identify kids at risk.

NOTE Confidence: 0.890789982

00:40:41.340 --> 00:40:44.292 So so seeing all of these this

NOTE Confidence: 0.890789982

00:40:44.292 --> 00:40:46.284 under you know under studied area

NOTE Confidence: 0.890789982

00:40:46.284 --> 00:40:48.363 and seeing the potential I decided

NOTE Confidence: 0.890789982

00:40:48.363 --> 00:40:50.391 several years ago that I wanted

NOTE Confidence: 0.890789982

00:40:50.391 --> 00:40:52.400 to become the science tooth fairy

NOTE Confidence: 0.890789982

00:40:52.400 --> 00:40:54.920 and and try to study baby teeth.

NOTE Confidence: 0.890789982

00:40:54.920 --> 00:40:57.990 So this is a the cover of a children's.
NOTE Confidence: 0.890789982

00:40:57.990 --> 00:40:59.302 Look, we actually wrote,
NOTE Confidence: 0.890789982

00:40:59.302 --> 00:41:01.919 so when kids are recruited into our study,
NOTE Confidence: 0.890789982

00:41:01.920 --> 00:41:04.053 we use this book as a way of talking
NOTE Confidence: 0.890789982

00:41:04.053 --> 00:41:06.296 with kids and family about why they
NOTE Confidence: 0.890789982

00:41:06.296 --> 00:41:07.999 should donate their teeth to us.
NOTE Confidence: 0.890789982

00:41:08.000 --> 00:41:09.120 I have copies of the book too,
NOTE Confidence: 0.890789982

00:41:09.120 --> 00:41:11.840 if anyone's interested in it.
NOTE Confidence: 0.890789982

00:41:11.840 --> 00:41:13.268 I'll just share a very high level,
NOTE Confidence: 0.890789982

00:41:13.270 --> 00:41:15.110 a couple of ideas part in the pond,
NOTE Confidence: 0.890789982

00:41:15.110 --> 00:41:17.072 but I just have to. I love puns.
NOTE Confidence: 0.890789982

00:41:17.072 --> 00:41:19.270 Well, we've been sinking our teeth into,
NOTE Confidence: 0.890789982

00:41:19.270 --> 00:41:21.286 in terms of this teeth conceptual model.
NOTE Confidence: 0.890789982

00:41:21.290 --> 00:41:24.170 So Simona Lemmers, Mona lawyer,
NOTE Confidence: 0.890789982

00:41:24.170 --> 00:41:26.466 2 postdocs in my lab and Ryan Lisanne,
NOTE Confidence: 0.890789982

00:41:26.470 --> 00:41:29.480 who's a pediatric dental resident

NOTE Confidence: 0.890789982

00:41:29.480 --> 00:41:30.684 at Children's.

NOTE Confidence: 0.890789982

00:41:30.690 --> 00:41:32.472 So we've been doing work on

NOTE Confidence: 0.890789982

00:41:32.472 --> 00:41:33.363 the empirical side,

NOTE Confidence: 0.882297653157895

00:41:33.370 --> 00:41:35.645 you know, can we see evidence of

NOTE Confidence: 0.882297653157895

00:41:35.645 --> 00:41:37.993 markers in in teeth being predicted

NOTE Confidence: 0.882297653157895

00:41:37.993 --> 00:41:40.585 by exposure to early life stress?

NOTE Confidence: 0.882297653157895

00:41:40.590 --> 00:41:41.970 We published a paper.

NOTE Confidence: 0.882297653157895

00:41:41.970 --> 00:41:44.538 Last year showing that markers of Mom

NOTE Confidence: 0.882297653157895

00:41:44.538 --> 00:41:46.673 depression and social support were

NOTE Confidence: 0.882297653157895

00:41:46.673 --> 00:41:48.791 associated with that neonatal line

NOTE Confidence: 0.882297653157895

00:41:48.791 --> 00:41:50.837 and in the direction we expected.

NOTE Confidence: 0.882297653157895

00:41:50.840 --> 00:41:53.648 So more stressful births in the

NOTE Confidence: 0.882297653157895

00:41:53.648 --> 00:41:55.520 form of higher psychopathology,

NOTE Confidence: 0.882297653157895

00:41:55.520 --> 00:41:57.380 wider neonatal line,

NOTE Confidence: 0.882297653157895

00:41:57.380 --> 00:41:59.860 conversely more social support,

NOTE Confidence: 0.882297653157895

00:41:59.860 --> 00:42:02.398 narrower neonatal line.
NOTE Confidence: 0.882297653157895

00:42:02.400 --> 00:42:04.800 And that was also pack.
NOTE Confidence: 0.882297653157895

00:42:04.800 --> 00:42:06.420 We also started a study,
NOTE Confidence: 0.882297653157895

00:42:06.420 --> 00:42:07.730 we just finished recruitment for
NOTE Confidence: 0.882297653157895

00:42:07.730 --> 00:42:09.357 it in the spring called strong
NOTE Confidence: 0.882297653157895

00:42:09.357 --> 00:42:10.712 the stories teeth record of
NOTE Confidence: 0.882297653157895

00:42:10.712 --> 00:42:12.080 newborn growth where we have.
NOTE Confidence: 0.882297653157895

00:42:12.080 --> 00:42:13.440 In recruiting the moms,
NOTE Confidence: 0.882297653157895

00:42:13.440 --> 00:42:15.140 recruiting the offspring of women
NOTE Confidence: 0.882297653157895

00:42:15.140 --> 00:42:17.044 who are pregnant or raising a
NOTE Confidence: 0.882297653157895

00:42:17.044 --> 00:42:18.549 newborn during the timing of
NOTE Confidence: 0.882297653157895

00:42:18.608 --> 00:42:20.168 the Boston Marathon bombing.
NOTE Confidence: 0.882297653157895

00:42:20.170 --> 00:42:22.429 So the idea here is we have a calendar
NOTE Confidence: 0.882297653157895

00:42:22.429 --> 00:42:24.289 dated major stressful life event.
NOTE Confidence: 0.882297653157895

00:42:24.290 --> 00:42:27.008 Can we see evidence of that
NOTE Confidence: 0.882297653157895

00:42:27.008 --> 00:42:28.820 recorded in kids teeth?

NOTE Confidence: 0.882297653157895

00:42:28.820 --> 00:42:30.676 We've also been doing work to then link

NOTE Confidence: 0.882297653157895

00:42:30.676 --> 00:42:32.768 what we see in teeth with mental health.

NOTE Confidence: 0.882297653157895

00:42:32.770 --> 00:42:34.960 So we published a paper showing

NOTE Confidence: 0.882297653157895

00:42:34.960 --> 00:42:36.870 that markers derived from micro

NOTE Confidence: 0.882297653157895

00:42:36.870 --> 00:42:39.138 CT of enamel volume and thickness

NOTE Confidence: 0.882297653157895

00:42:39.138 --> 00:42:40.876 predicted levels of psychopathology

NOTE Confidence: 0.882297653157895

00:42:40.876 --> 00:42:43.546 symptoms in kindergarten age kids.

NOTE Confidence: 0.882297653157895

00:42:43.550 --> 00:42:45.818 And then we also have some work

NOTE Confidence: 0.882297653157895

00:42:45.818 --> 00:42:47.915 looking at kind of the timing

NOTE Confidence: 0.882297653157895

00:42:47.915 --> 00:42:50.027 and pacing of these growth marks

NOTE Confidence: 0.882297653157895

00:42:50.030 --> 00:42:52.530 predicting weight gain in adolescence.

NOTE Confidence: 0.882297653157895

00:42:52.530 --> 00:42:53.754 And then the last thing that

NOTE Confidence: 0.882297653157895

00:42:53.754 --> 00:42:55.134 we've been working on are more

NOTE Confidence: 0.882297653157895

00:42:55.134 --> 00:42:56.170 feasibility kinds of studies.

NOTE Confidence: 0.882297653157895

00:42:56.170 --> 00:42:58.230 So teeth are new biomarkers,

NOTE Confidence: 0.882297653157895

00:42:58.230 --> 00:42:59.070 you know we need to.
NOTE Confidence: 0.882297653157895

00:42:59.070 --> 00:42:59.554 You know,
NOTE Confidence: 0.882297653157895

00:42:59.554 --> 00:43:00.522 it's scientists and clinicians
NOTE Confidence: 0.882297653157895

00:43:00.522 --> 00:43:02.090 how we should be talking about
NOTE Confidence: 0.882297653157895

00:43:02.090 --> 00:43:03.460 them with parents and families,
NOTE Confidence: 0.882297653157895

00:43:03.460 --> 00:43:04.728 particularly help us understand
NOTE Confidence: 0.882297653157895

00:43:04.728 --> 00:43:06.313 how we can use them.
NOTE Confidence: 0.882297653157895

00:43:06.320 --> 00:43:08.120 So we've also been doing studies
NOTE Confidence: 0.882297653157895

00:43:08.120 --> 00:43:09.320 to try to understand.
NOTE Confidence: 0.882297653157895

00:43:09.320 --> 00:43:12.056 What do people think about teeth?
NOTE Confidence: 0.882297653157895

00:43:12.060 --> 00:43:13.986 I I laugh when I get emails about them.
NOTE Confidence: 0.882297653157895

00:43:13.990 --> 00:43:15.766 Sometimes Mom will say, you know,
NOTE Confidence: 0.882297653157895

00:43:15.770 --> 00:43:18.858 dear Doctor Dunn, I've read about your study.
NOTE Confidence: 0.882297653157895

00:43:18.860 --> 00:43:20.468 I saved my child's baby teeth.
NOTE Confidence: 0.882297653157895

00:43:20.470 --> 00:43:22.550 And then it's either one of two things.
NOTE Confidence: 0.882297653157895

00:43:22.550 --> 00:43:24.790 I'm so glad I saved them or you.

NOTE Confidence: 0.882297653157895
00:43:24.790 --> 00:43:25.525 Isn't that gross?
NOTE Confidence: 0.882297653157895
00:43:25.525 --> 00:43:27.240 I don't know why I saved them.
NOTE Confidence: 0.882297653157895
00:43:27.240 --> 00:43:28.744 Something along those lines.
NOTE Confidence: 0.882297653157895
00:43:28.744 --> 00:43:29.120 So.
NOTE Confidence: 0.882297653157895
00:43:29.120 --> 00:43:30.541 I think there's a lot that we
NOTE Confidence: 0.882297653157895
00:43:30.541 --> 00:43:31.390 can potentially learn here,
NOTE Confidence: 0.882297653157895
00:43:31.390 --> 00:43:33.455 and I think that will be important
NOTE Confidence: 0.882297653157895
00:43:33.455 --> 00:43:35.112 for building a solid foundation
NOTE Confidence: 0.882297653157895
00:43:35.112 --> 00:43:36.877 for this work to unfold.
NOTE Confidence: 0.882297653157895
00:43:36.880 --> 00:43:39.310 So let me just wrap up by saying a
NOTE Confidence: 0.882297653157895
00:43:39.310 --> 00:43:41.367 little bit more on the translational
NOTE Confidence: 0.882297653157895
00:43:41.367 --> 00:43:44.239 side in terms of where I see this
NOTE Confidence: 0.882297653157895
00:43:44.239 --> 00:43:46.417 work potentially going in terms of
NOTE Confidence: 0.882297653157895
00:43:46.417 --> 00:43:48.214 promoting resilience and trying
NOTE Confidence: 0.882297653157895
00:43:48.214 --> 00:43:50.126 to reduce health disparities.
NOTE Confidence: 0.882297653157895

00:43:50.130 --> 00:43:51.964 You know we talked very early on
NOTE Confidence: 0.882297653157895

00:43:51.964 --> 00:43:54.015 in the pandemic about us living
NOTE Confidence: 0.882297653157895

00:43:54.015 --> 00:43:55.218 through unprecedented times.
NOTE Confidence: 0.882297653157895

00:43:55.220 --> 00:43:56.180 I don't feel like we,
NOTE Confidence: 0.882297653157895

00:43:56.180 --> 00:43:57.416 you hear that as much now,
NOTE Confidence: 0.882297653157895

00:43:57.420 --> 00:43:59.740 but I still think we very much are.
NOTE Confidence: 0.882297653157895

00:43:59.740 --> 00:44:00.631 So you know,
NOTE Confidence: 0.882297653157895

00:44:00.631 --> 00:44:02.413 we have all these stressors that
NOTE Confidence: 0.882297653157895

00:44:02.413 --> 00:44:04.537 people experience before the pandemic,
NOTE Confidence: 0.882297653157895

00:44:04.540 --> 00:44:07.095 you know add on these additional stressors.
NOTE Confidence: 0.882297653157895

00:44:07.100 --> 00:44:08.725 That people are experiencing as
NOTE Confidence: 0.882297653157895

00:44:08.725 --> 00:44:10.350 a result of the pandemic.
NOTE Confidence: 0.882297653157895

00:44:10.350 --> 00:44:12.310 But I also think simultaneously
NOTE Confidence: 0.882297653157895

00:44:12.310 --> 00:44:14.677 we're seeing these shifts that are
NOTE Confidence: 0.882297653157895

00:44:14.677 --> 00:44:17.022 happening largely as a result of the
NOTE Confidence: 0.882297653157895

00:44:17.022 --> 00:44:19.150 civil rights movement around racial

NOTE Confidence: 0.882297653157895
00:44:19.150 --> 00:44:20.998 equality and some institutional
NOTE Confidence: 0.882297653157895
00:44:20.998 --> 00:44:22.384 practices that are
NOTE Confidence: 0.932483985
00:44:22.390 --> 00:44:27.198 starting to shift where.
NOTE Confidence: 0.932483985
00:44:27.200 --> 00:44:29.280 Oh, OK. Thank you.
NOTE Confidence: 0.932483985
00:44:29.280 --> 00:44:31.156 Umm, where we're seeing some
NOTE Confidence: 0.932483985
00:44:31.156 --> 00:44:32.512 movement to potentially better
NOTE Confidence: 0.932483985
00:44:32.512 --> 00:44:34.000 address some of these areas.
NOTE Confidence: 0.932483985
00:44:34.000 --> 00:44:36.328 And I think where we are as scientists
NOTE Confidence: 0.932483985
00:44:36.328 --> 00:44:38.340 and also as clinicians is that,
NOTE Confidence: 0.932483985
00:44:38.340 --> 00:44:39.996 you know, we have the chance to really,
NOTE Confidence: 0.932483985
00:44:40.000 --> 00:44:43.056 I think, develop a deeper and more meaningful
NOTE Confidence: 0.932483985
00:44:43.056 --> 00:44:45.200 research agenda to try to understand,
NOTE Confidence: 0.932483985
00:44:45.200 --> 00:44:47.610 you know, opportunities to identify
NOTE Confidence: 0.932483985
00:44:47.610 --> 00:44:50.642 ways to promote health and reduce
NOTE Confidence: 0.932483985
00:44:50.642 --> 00:44:53.362 risk and build some interventions
NOTE Confidence: 0.932483985

00:44:53.362 --> 00:44:55.538 to really promote resilience.
NOTE Confidence: 0.932483985

00:44:55.540 --> 00:44:57.250 I think there's at least two.
NOTE Confidence: 0.932483985

00:44:57.250 --> 00:44:58.438 Main starting points for
NOTE Confidence: 0.932483985

00:44:58.438 --> 00:45:00.660 where we can go in this front,
NOTE Confidence: 0.932483985

00:45:00.660 --> 00:45:02.980 I think one is we spend a ton
NOTE Confidence: 0.932483985

00:45:02.980 --> 00:45:05.220 of time focusing on the bad.
NOTE Confidence: 0.932483985

00:45:05.220 --> 00:45:08.360 We do a lot of work and adversity and trauma,
NOTE Confidence: 0.932483985

00:45:08.360 --> 00:45:08.800 you know,
NOTE Confidence: 0.932483985

00:45:08.800 --> 00:45:10.120 and I think the resilience world,
NOTE Confidence: 0.932483985

00:45:10.120 --> 00:45:11.112 there's definitely been a
NOTE Confidence: 0.932483985

00:45:11.112 --> 00:45:12.600 lot of work in this area,
NOTE Confidence: 0.932483985

00:45:12.600 --> 00:45:14.856 but I don't think that the
NOTE Confidence: 0.932483985

00:45:14.856 --> 00:45:16.360 resilience work has necessarily
NOTE Confidence: 0.932483985

00:45:16.433 --> 00:45:18.455 been as integrated in areas of
NOTE Confidence: 0.932483985

00:45:18.455 --> 00:45:20.459 biology where I think it could.
NOTE Confidence: 0.932483985

00:45:20.460 --> 00:45:22.422 So I was sharing with some of you that

NOTE Confidence: 0.932483985

00:45:22.422 --> 00:45:24.364 we just had a grant that hopefully

NOTE Confidence: 0.932483985

00:45:24.364 --> 00:45:26.419 will get funded that will allow us

NOTE Confidence: 0.932483985

00:45:26.419 --> 00:45:28.195 to look at the biological embedding.

NOTE Confidence: 0.932483985

00:45:28.200 --> 00:45:29.070 Of protective factors.

NOTE Confidence: 0.932483985

00:45:29.070 --> 00:45:31.100 And I think this is something that

NOTE Confidence: 0.932483985

00:45:31.152 --> 00:45:33.114 we need to bring in as part of our

NOTE Confidence: 0.932483985

00:45:33.114 --> 00:45:35.006 research model so that we're not just

NOTE Confidence: 0.932483985

00:45:35.006 --> 00:45:37.004 studying risk because we know that

NOTE Confidence: 0.932483985

00:45:37.004 --> 00:45:39.289 risk alone doesn't predict outcomes,

NOTE Confidence: 0.932483985

00:45:39.290 --> 00:45:41.118 but it's a constellation

NOTE Confidence: 0.932483985

00:45:41.118 --> 00:45:42.489 of different factors.

NOTE Confidence: 0.932483985

00:45:42.490 --> 00:45:44.570 I think the other thing too is that

NOTE Confidence: 0.932483985

00:45:44.570 --> 00:45:46.930 we also need to do more to develop

NOTE Confidence: 0.932483985

00:45:46.930 --> 00:45:48.708 and implement tools to measure

NOTE Confidence: 0.932483985

00:45:48.708 --> 00:45:50.812 childhood adversity and differentiate

NOTE Confidence: 0.932483985

00:45:50.812 --> 00:45:52.916 exposure from the biological
NOTE Confidence: 0.932483985

00:45:52.916 --> 00:45:54.368 consequences of that exposure.
NOTE Confidence: 0.932483985

00:45:54.368 --> 00:45:56.872 And I think this is really, really hard,
NOTE Confidence: 0.932483985

00:45:56.872 --> 00:45:58.858 but I'm hoping maybe we're baby.
NOTE Confidence: 0.932483985

00:45:58.860 --> 00:46:00.729 Keith and and some of our epigenetic
NOTE Confidence: 0.932483985

00:46:00.729 --> 00:46:03.359 work can go and I think this is really
NOTE Confidence: 0.932483985

00:46:03.359 --> 00:46:05.131 critical because you might find that
NOTE Confidence: 0.932483985

00:46:05.131 --> 00:46:07.000 some kid has the exposure but seems
NOTE Confidence: 0.932483985

00:46:07.000 --> 00:46:09.118 to be doing OK you know there's
NOTE Confidence: 0.932483985

00:46:09.118 --> 00:46:11.030 individual differences in this adversities,
NOTE Confidence: 0.932483985

00:46:11.030 --> 00:46:11.814 not deterministic.
NOTE Confidence: 0.932483985

00:46:11.814 --> 00:46:14.558 So I think being able to disentangle
NOTE Confidence: 0.932483985

00:46:14.558 --> 00:46:17.015 these is going to be really critical.
NOTE Confidence: 0.932483985

00:46:17.020 --> 00:46:19.588 In terms of the applications and
NOTE Confidence: 0.932483985

00:46:19.588 --> 00:46:21.300 implications of the epigenetics
NOTE Confidence: 0.932483985

00:46:21.366 --> 00:46:23.636 and exfoliated primary teeth work,

NOTE Confidence: 0.932483985

00:46:23.640 --> 00:46:25.130 you know, I'm an epidemiologist,

NOTE Confidence: 0.932483985

00:46:25.130 --> 00:46:27.167 so I don't always have the the

NOTE Confidence: 0.932483985

00:46:27.167 --> 00:46:29.568 the fortune of being able to talk

NOTE Confidence: 0.932483985

00:46:29.568 --> 00:46:31.024 with parents and families.

NOTE Confidence: 0.932483985

00:46:31.030 --> 00:46:32.262 But when I do,

NOTE Confidence: 0.932483985

00:46:32.262 --> 00:46:34.749 I'm always struck by the questions they ask.

NOTE Confidence: 0.932483985

00:46:34.750 --> 00:46:36.880 And they always ask two things.

NOTE Confidence: 0.932483985

00:46:36.880 --> 00:46:38.448 The first thing is they want answers.

NOTE Confidence: 0.932483985

00:46:38.450 --> 00:46:40.658 They want to know why did my loved

NOTE Confidence: 0.932483985

00:46:40.658 --> 00:46:42.590 one develop a mental health issue?

NOTE Confidence: 0.932483985

00:46:42.590 --> 00:46:44.542 They want to know if you know their

NOTE Confidence: 0.932483985

00:46:44.542 --> 00:46:46.129 child being exposed at this age,

NOTE Confidence: 0.932483985

00:46:46.130 --> 00:46:47.090 you know, caused this,

NOTE Confidence: 0.932483985

00:46:47.090 --> 00:46:48.530 and then they also want hope.

NOTE Confidence: 0.932483985

00:46:48.530 --> 00:46:50.490 They want to know what can be done

NOTE Confidence: 0.932483985

00:46:50.490 --> 00:46:51.979 to prevent some mental health
NOTE Confidence: 0.932483985

00:46:51.979 --> 00:46:53.863 issue and someone else they love.
NOTE Confidence: 0.932483985

00:46:53.870 --> 00:46:55.388 And so I think, you know,
NOTE Confidence: 0.932483985

00:46:55.390 --> 00:46:56.730 what if baby teeth,
NOTE Confidence: 0.932483985

00:46:56.730 --> 00:46:58.405 when paired with existing tools
NOTE Confidence: 0.932483985

00:46:58.405 --> 00:47:00.408 and insights like family history
NOTE Confidence: 0.932483985

00:47:00.408 --> 00:47:02.408 and genetic and other markers,
NOTE Confidence: 0.932483985

00:47:02.410 --> 00:47:04.375 could provide answers to some
NOTE Confidence: 0.932483985

00:47:04.375 --> 00:47:05.947 of these burning questions.
NOTE Confidence: 0.932483985

00:47:05.950 --> 00:47:06.952 And you know,
NOTE Confidence: 0.932483985

00:47:06.952 --> 00:47:08.622 they these things are something
NOTE Confidence: 0.932483985

00:47:08.622 --> 00:47:09.290 that naturally
NOTE Confidence: 0.8570116992

00:47:09.354 --> 00:47:11.910 fall out of our mouth and most times they're
NOTE Confidence: 0.8570116992

00:47:11.910 --> 00:47:13.926 either stored or they're thrown away.
NOTE Confidence: 0.8570116992

00:47:13.930 --> 00:47:16.275 But what if instead, these really hidden
NOTE Confidence: 0.8570116992

00:47:16.275 --> 00:47:18.641 in plain sight objects could be used

NOTE Confidence: 0.8570116992

00:47:18.641 --> 00:47:20.973 to give new insights that could help

NOTE Confidence: 0.8570116992

00:47:20.973 --> 00:47:23.269 identify people that might be at risk,

NOTE Confidence: 0.8570116992

00:47:23.270 --> 00:47:26.918 and use the data from that to target

NOTE Confidence: 0.8570116992

00:47:26.918 --> 00:47:30.470 towards specific strategies for prevention?

NOTE Confidence: 0.8570116992

00:47:30.470 --> 00:47:32.900 And I think this is where maybe one day

NOTE Confidence: 0.8570116992

00:47:32.900 --> 00:47:35.658 we might be able to add methylation

NOTE Confidence: 0.8570116992

00:47:35.658 --> 00:47:37.719 signatures or these epigenetic signatures

NOTE Confidence: 0.8570116992

00:47:37.719 --> 00:47:40.687 and teeth as part of our screening tools.

NOTE Confidence: 0.8570116992

00:47:40.690 --> 00:47:43.074 So, you know, imagine a world where somewhere

NOTE Confidence: 0.8570116992

00:47:43.074 --> 00:47:45.390 in the future a child loses a tooth,

NOTE Confidence: 0.8570116992

00:47:45.390 --> 00:47:47.106 whether it falls out,

NOTE Confidence: 0.8570116992

00:47:47.106 --> 00:47:48.822 it's lost for orthodontia

NOTE Confidence: 0.8570116992

00:47:48.822 --> 00:47:50.810 or wisdom tooth surgery.

NOTE Confidence: 0.8570116992

00:47:50.810 --> 00:47:54.302 And that tooth is taken to a healthcare

NOTE Confidence: 0.8570116992

00:47:54.302 --> 00:47:56.514 provider who sends it off then to

NOTE Confidence: 0.8570116992

00:47:56.514 --> 00:47:58.509 a specialized lab and that that
NOTE Confidence: 0.8570116992

00:47:58.509 --> 00:48:00.720 lab is then able to combine.
NOTE Confidence: 0.8570116992

00:48:00.720 --> 00:48:02.890 Data from other omic markers,
NOTE Confidence: 0.8570116992

00:48:02.890 --> 00:48:05.100 genetic markers and epigenetic markers
NOTE Confidence: 0.8570116992

00:48:05.100 --> 00:48:07.760 and survey data about early life
NOTE Confidence: 0.8570116992

00:48:07.760 --> 00:48:10.046 stress and other stressors and more
NOTE Confidence: 0.8570116992

00:48:10.046 --> 00:48:12.737 about the family context and pair that
NOTE Confidence: 0.8570116992

00:48:12.737 --> 00:48:15.232 with family history data and that you
NOTE Confidence: 0.8570116992

00:48:15.232 --> 00:48:17.206 could then use that to then identify
NOTE Confidence: 0.8570116992

00:48:17.206 --> 00:48:19.781 people who might be at highest risk and
NOTE Confidence: 0.8570116992

00:48:19.781 --> 00:48:21.750 connect them with preventative treatments.
NOTE Confidence: 0.8570116992

00:48:21.750 --> 00:48:22.982 I think there's a lot we have
NOTE Confidence: 0.8570116992

00:48:22.982 --> 00:48:24.070 to do on this space,
NOTE Confidence: 0.8570116992

00:48:24.070 --> 00:48:25.876 but I think it's really promising when
NOTE Confidence: 0.8570116992

00:48:25.876 --> 00:48:27.729 we think about what we know already,
NOTE Confidence: 0.8570116992

00:48:27.730 --> 00:48:29.668 we know that exercise is protective,

NOTE Confidence: 0.8570116992

00:48:29.670 --> 00:48:30.890 we know that social support.

NOTE Confidence: 0.8570116992

00:48:30.890 --> 00:48:31.164 Protective.

NOTE Confidence: 0.8570116992

00:48:31.164 --> 00:48:33.630 So can we get that data in the hands

NOTE Confidence: 0.8570116992

00:48:33.694 --> 00:48:35.494 of people and create interventions

NOTE Confidence: 0.8570116992

00:48:35.494 --> 00:48:37.609 that really leverage that so that

NOTE Confidence: 0.8570116992

00:48:37.609 --> 00:48:39.127 we can try to reduce risk?

NOTE Confidence: 0.8570116992

00:48:39.130 --> 00:48:40.817 And it might also be someday too

NOTE Confidence: 0.8570116992

00:48:40.817 --> 00:48:42.652 that we're able to shift these

NOTE Confidence: 0.8570116992

00:48:42.652 --> 00:48:43.708 methylation signatures too.

NOTE Confidence: 0.8570116992

00:48:43.710 --> 00:48:45.486 So we see something turning on

NOTE Confidence: 0.8570116992

00:48:45.486 --> 00:48:46.670 that might be deleterious,

NOTE Confidence: 0.8570116992

00:48:46.670 --> 00:48:48.918 maybe there's an intervention,

NOTE Confidence: 0.8570116992

00:48:48.918 --> 00:48:50.604 biological or not,

NOTE Confidence: 0.8570116992

00:48:50.610 --> 00:48:53.190 that can also produce those shifts.

NOTE Confidence: 0.8570116992

00:48:53.190 --> 00:48:54.828 And then in just my last slide,

NOTE Confidence: 0.8570116992

00:48:54.830 --> 00:48:57.827 I'll also say too that I think one thing
NOTE Confidence: 0.8570116992

00:48:57.827 --> 00:49:00.676 that we also want to be mindful of IS,
NOTE Confidence: 0.8570116992

00:49:00.680 --> 00:49:01.032 is.
NOTE Confidence: 0.8570116992

00:49:01.032 --> 00:49:03.496 This idea of of screening and I
NOTE Confidence: 0.8570116992

00:49:03.496 --> 00:49:05.856 think there's a lot of interest
NOTE Confidence: 0.8570116992

00:49:05.856 --> 00:49:07.436 in people doing screening.
NOTE Confidence: 0.8570116992

00:49:07.440 --> 00:49:10.040 I think we have to be careful around
NOTE Confidence: 0.8570116992

00:49:10.040 --> 00:49:12.356 screening though and and we published this,
NOTE Confidence: 0.8570116992

00:49:12.360 --> 00:49:14.960 this commentary a couple months
NOTE Confidence: 0.8570116992

00:49:14.960 --> 00:49:16.936 ago where we tried to just put a
NOTE Confidence: 0.8570116992

00:49:16.936 --> 00:49:18.495 little bit of context around this
NOTE Confidence: 0.8570116992

00:49:18.495 --> 00:49:20.253 area of screening because I think
NOTE Confidence: 0.8570116992

00:49:20.253 --> 00:49:22.146 we're at this tipping point where
NOTE Confidence: 0.8570116992

00:49:22.146 --> 00:49:23.076 there's the potential,
NOTE Confidence: 0.8570116992

00:49:23.080 --> 00:49:25.228 the real potential for screening for
NOTE Confidence: 0.8570116992

00:49:25.228 --> 00:49:27.036 childhood adversity to do potential

NOTE Confidence: 0.8570116992

00:49:27.036 --> 00:49:28.914 more harm than it does good.

NOTE Confidence: 0.8570116992

00:49:28.920 --> 00:49:30.424 So in this commentary.

NOTE Confidence: 0.8570116992

00:49:30.424 --> 00:49:32.304 We just described some recommendations

NOTE Confidence: 0.8570116992

00:49:32.304 --> 00:49:34.335 that folks should consider when

NOTE Confidence: 0.8570116992

00:49:34.335 --> 00:49:36.330 deploying these kinds of screenings.

NOTE Confidence: 0.8570116992

00:49:36.330 --> 00:49:37.227 And you know,

NOTE Confidence: 0.8570116992

00:49:37.227 --> 00:49:39.021 being very clear about what things

NOTE Confidence: 0.8570116992

00:49:39.021 --> 00:49:40.577 measure and and deploying screening

NOTE Confidence: 0.8570116992

00:49:40.577 --> 00:49:43.141 at the right time and making sure that

NOTE Confidence: 0.8570116992

00:49:43.141 --> 00:49:45.265 there are appropriate interventions to use.

NOTE Confidence: 0.8570116992

00:49:45.270 --> 00:49:47.052 And also just creating systems that

NOTE Confidence: 0.8570116992

00:49:47.052 --> 00:49:48.613 are nimble and adaptable knowing

NOTE Confidence: 0.8570116992

00:49:48.613 --> 00:49:50.515 that the science of adversity and

NOTE Confidence: 0.8570116992

00:49:50.515 --> 00:49:52.006 resilience is changing and therefore

NOTE Confidence: 0.8570116992

00:49:52.006 --> 00:49:53.707 we want to be able to leverage

NOTE Confidence: 0.8570116992

00:49:53.707 --> 00:49:55.975 that best evidence in support of
NOTE Confidence: 0.8570116992

00:49:55.975 --> 00:49:57.190 of future interventions.
NOTE Confidence: 0.8570116992

00:49:57.190 --> 00:50:01.150 So with that, just to thank everyone who's.
NOTE Confidence: 0.851094551

00:50:01.150 --> 00:50:04.738 And part of my career journey
NOTE Confidence: 0.851094551

00:50:04.738 --> 00:50:07.130 and my collaboration team.
NOTE Confidence: 0.851094551

00:50:07.130 --> 00:50:08.702 Immigration is good because
NOTE Confidence: 0.851094551

00:50:08.702 --> 00:50:10.667 science is a global enterprise.
NOTE Confidence: 0.851094551

00:50:10.670 --> 00:50:13.900 And thank my outstanding lab
NOTE Confidence: 0.851094551

00:50:13.900 --> 00:50:15.840 members and sources of funding and
NOTE Confidence: 0.851094551

00:50:15.840 --> 00:50:17.521 I'm happy to take any questions
NOTE Confidence: 0.851094551

00:50:17.521 --> 00:50:19.080 you might have. Thank you.
NOTE Confidence: 0.78020521

00:50:25.780 --> 00:50:27.850 Wonderful. Thank you so much Doctor
NOTE Confidence: 0.78020521

00:50:27.850 --> 00:50:30.720 Dunn and fantastic mix of topics there.
NOTE Confidence: 0.78020521

00:50:30.720 --> 00:50:31.668 And I know that we've already
NOTE Confidence: 0.78020521

00:50:31.668 --> 00:50:32.620 got some questions on the chat.
NOTE Confidence: 0.78020521

00:50:32.620 --> 00:50:33.425 Are there any questions in

NOTE Confidence: 0.78020521

00:50:33.425 --> 00:50:34.560 the room to get us started?

NOTE Confidence: 0.820819014433333

00:50:41.830 --> 00:50:43.622 And so one question that we had in

NOTE Confidence: 0.820819014433333

00:50:43.622 --> 00:50:45.256 the chat and actually from Doctor

NOTE Confidence: 0.820819014433333

00:50:45.256 --> 00:50:47.329 Martin was can you talk about the

NOTE Confidence: 0.820819014433333

00:50:47.329 --> 00:50:48.974 parallels between telomere length and

NOTE Confidence: 0.820819014433333

00:50:48.974 --> 00:50:51.122 some of those markers that you're

NOTE Confidence: 0.820819014433333

00:50:51.122 --> 00:50:57.530 observing in teeth? Oh, there is.

NOTE Confidence: 0.834738841666667

00:50:57.530 --> 00:51:00.122 I thought you were maybe going to ask

NOTE Confidence: 0.834738841666667

00:51:00.122 --> 00:51:02.046 about parallels between Umm Tillman

NOTE Confidence: 0.834738841666667

00:51:02.046 --> 00:51:04.726 or length and epigenetic aging.

NOTE Confidence: 0.834738841666667

00:51:04.730 --> 00:51:08.584 We don't. What are you? So. Umm.

NOTE Confidence: 0.834738841666667

00:51:08.584 --> 00:51:11.680 So I think that this is an area

NOTE Confidence: 0.834738841666667

00:51:11.782 --> 00:51:14.631 where I don't know that I've seen

NOTE Confidence: 0.834738841666667

00:51:14.631 --> 00:51:18.078 a lot of very good comparisons.

NOTE Confidence: 0.834738841666667

00:51:18.080 --> 00:51:19.480 There's the epigenetic clocks

NOTE Confidence: 0.834738841666667

00:51:19.480 --> 00:51:21.230 that people tend to use.
NOTE Confidence: 0.834738841666667

00:51:21.230 --> 00:51:23.210 There's now, there's now about
NOTE Confidence: 0.834738841666667

00:51:23.210 --> 00:51:25.660 1/2 a dozen dozen of them.
NOTE Confidence: 0.834738841666667

00:51:25.660 --> 00:51:27.700 Some of them are correlating with each other,
NOTE Confidence: 0.834738841666667

00:51:27.700 --> 00:51:28.724 some of them aren't.
NOTE Confidence: 0.834738841666667

00:51:28.724 --> 00:51:30.719 It depends on what tissue type you get,
NOTE Confidence: 0.834738841666667

00:51:30.720 --> 00:51:32.750 whether you have buckle cells
NOTE Confidence: 0.834738841666667

00:51:32.750 --> 00:51:34.374 or saliva or blood.
NOTE Confidence: 0.834738841666667

00:51:34.380 --> 00:51:36.531 So I think part of what we as a
NOTE Confidence: 0.834738841666667

00:51:36.531 --> 00:51:38.854 field have to grapple with is trying
NOTE Confidence: 0.834738841666667

00:51:38.854 --> 00:51:41.565 to build studies that allow us to
NOTE Confidence: 0.834738841666667

00:51:41.565 --> 00:51:43.297 better understand similarities and
NOTE Confidence: 0.834738841666667

00:51:43.297 --> 00:51:45.689 differences in these markers and then
NOTE Confidence: 0.834738841666667

00:51:45.689 --> 00:51:48.480 also piece together that with the context of.
NOTE Confidence: 0.834738841666667

00:51:48.480 --> 00:51:50.350 Development because as I shared,
NOTE Confidence: 0.834738841666667

00:51:50.350 --> 00:51:52.240 a lot of these markers also vary,

NOTE Confidence: 0.834738841666667
00:51:52.240 --> 00:51:52.946 you know,
NOTE Confidence: 0.834738841666667
00:51:52.946 --> 00:51:55.064 over over the course of lifespan,
NOTE Confidence: 0.834738841666667
00:51:55.070 --> 00:51:56.111 telomeres and teeth,
NOTE Confidence: 0.834738841666667
00:51:56.111 --> 00:51:58.540 I haven't thought about it and we
NOTE Confidence: 0.834738841666667
00:51:58.604 --> 00:52:01.110 haven't done anything on that just yet.
NOTE Confidence: 0.834738841666667
00:52:01.110 --> 00:52:03.210 I think teeth are really understudied
NOTE Confidence: 0.834738841666667
00:52:03.210 --> 00:52:05.461 and an area where there's a lot
NOTE Confidence: 0.834738841666667
00:52:05.461 --> 00:52:07.288 of a lot that we can learn.
NOTE Confidence: 0.834738841666667
00:52:07.290 --> 00:52:10.314 I don't know if there maybe there's
NOTE Confidence: 0.834738841666667
00:52:10.314 --> 00:52:12.673 something in that circadian process
NOTE Confidence: 0.834738841666667
00:52:12.673 --> 00:52:16.096 that can be indicative of of aging
NOTE Confidence: 0.834738841666667
00:52:16.096 --> 00:52:17.917 related processes or something,
NOTE Confidence: 0.834738841666667
00:52:17.917 --> 00:52:19.519 but I have we haven't gotten.
NOTE Confidence: 0.834738841666667
00:52:19.520 --> 00:52:21.662 To that yet, but but it's a great question,
NOTE Confidence: 0.834738841666667
00:52:21.670 --> 00:52:22.678 something to think about.
NOTE Confidence: 0.892573172857143

00:52:30.260 --> 00:52:33.046 I just had a quick question about.
NOTE Confidence: 0.892573172857143

00:52:33.050 --> 00:52:35.745 The you brought up measure difficulties with
NOTE Confidence: 0.892573172857143

00:52:35.745 --> 00:52:37.798 measurement and bringing it back to age,
NOTE Confidence: 0.892573172857143

00:52:37.800 --> 00:52:39.686 and age being kind of just
NOTE Confidence: 0.892573172857143

00:52:39.686 --> 00:52:41.198 a proxy for development,
NOTE Confidence: 0.892573172857143

00:52:41.200 --> 00:52:43.465 and then you're interested in
NOTE Confidence: 0.892573172857143

00:52:43.465 --> 00:52:46.700 looking for sensitive periods.
NOTE Confidence: 0.892573172857143

00:52:46.700 --> 00:52:49.760 I noticed in across the development
NOTE Confidence: 0.892573172857143

00:52:49.760 --> 00:52:53.770 age was bent in and I think routinely
NOTE Confidence: 0.892573172857143

00:52:53.770 --> 00:52:56.544 about two year increments and I'm
NOTE Confidence: 0.892573172857143

00:52:56.544 --> 00:52:59.088 wondering if that is was informed
NOTE Confidence: 0.892573172857143

00:52:59.088 --> 00:53:01.775 by by research or because that
NOTE Confidence: 0.892573172857143

00:53:01.775 --> 00:53:04.439 really can either hinder or help.
NOTE Confidence: 0.892573172857143

00:53:04.440 --> 00:53:07.938 Finding these sort of sensitive periods,
NOTE Confidence: 0.892573172857143

00:53:07.940 --> 00:53:09.190 if something falls in between
NOTE Confidence: 0.892573172857143

00:53:09.190 --> 00:53:11.169 one of those bins or so I just

NOTE Confidence: 0.892573172857143
00:53:11.169 --> 00:53:12.519 wondering if you could speak to
NOTE Confidence: 0.892573172857143
00:53:12.519 --> 00:53:13.950 how those are are gathered.
NOTE Confidence: 0.824961088076923
00:53:14.700 --> 00:53:16.866 I love your question and doing
NOTE Confidence: 0.824961088076923
00:53:16.866 --> 00:53:18.996 sensitive period work in relying on
NOTE Confidence: 0.824961088076923
00:53:18.996 --> 00:53:21.460 age I think as your questions may be
NOTE Confidence: 0.824961088076923
00:53:21.534 --> 00:53:23.898 saying is just an imperfect measure.
NOTE Confidence: 0.824961088076923
00:53:23.900 --> 00:53:29.124 So we we tend to use the most.
NOTE Confidence: 0.824961088076923
00:53:29.130 --> 00:53:32.554 The narrowest age we can and then we
NOTE Confidence: 0.824961088076923
00:53:32.554 --> 00:53:35.519 afterwards Bennett into developmental stages.
NOTE Confidence: 0.824961088076923
00:53:35.520 --> 00:53:38.056 So in other words we try to leverage.
NOTE Confidence: 0.824961088076923
00:53:38.060 --> 00:53:41.399 So we have differences based on month of age.
NOTE Confidence: 0.824961088076923
00:53:41.400 --> 00:53:43.542 So we have eight months and you know 17
NOTE Confidence: 0.824961088076923
00:53:43.542 --> 00:53:45.324 months or whatever and then we'll group
NOTE Confidence: 0.824961088076923
00:53:45.324 --> 00:53:47.679 after we do the analysis into just a
NOTE Confidence: 0.824961088076923
00:53:47.679 --> 00:53:49.635 developmental stage and the thinking there
NOTE Confidence: 0.824961088076923

00:53:49.640 --> 00:53:51.616 is that's just sort of how we think,
NOTE Confidence: 0.824961088076923

00:53:51.620 --> 00:53:54.300 we think of you know based on school
NOTE Confidence: 0.824961088076923

00:53:54.300 --> 00:53:56.989 age and non school age or preschool
NOTE Confidence: 0.824961088076923

00:53:56.989 --> 00:53:59.240 period or what have you so.
NOTE Confidence: 0.824961088076923

00:53:59.240 --> 00:54:01.452 It's really just meant to try to
NOTE Confidence: 0.824961088076923

00:54:01.452 --> 00:54:03.050 help better translate that work.
NOTE Confidence: 0.824961088076923

00:54:03.050 --> 00:54:04.735 I think really to understand
NOTE Confidence: 0.824961088076923

00:54:04.735 --> 00:54:05.409 sensitive periods,
NOTE Confidence: 0.824961088076923

00:54:05.410 --> 00:54:07.944 we need to have measures of plasticity.
NOTE Confidence: 0.824961088076923

00:54:07.950 --> 00:54:09.870 And in order to have measures of plasticity,
NOTE Confidence: 0.824961088076923

00:54:09.870 --> 00:54:11.856 we need to know what plasticity
NOTE Confidence: 0.824961088076923

00:54:11.856 --> 00:54:14.030 actually is and how what we mean
NOTE Confidence: 0.824961088076923

00:54:14.030 --> 00:54:15.850 by it and how we define it.
NOTE Confidence: 0.824961088076923

00:54:15.850 --> 00:54:17.642 So I have a postdoc in my group
NOTE Confidence: 0.824961088076923

00:54:17.642 --> 00:54:18.910 that's actually working on that.
NOTE Confidence: 0.824961088076923

00:54:18.910 --> 00:54:21.250 That's just saying can we get all on the

NOTE Confidence: 0.824961088076923

00:54:21.250 --> 00:54:23.769 same page about what we mean by plasticity.

NOTE Confidence: 0.824961088076923

00:54:23.770 --> 00:54:25.870 So the plan is to write a paper on that

NOTE Confidence: 0.824961088076923

00:54:25.930 --> 00:54:28.090 and then to follow that with a paper on,

NOTE Confidence: 0.824961088076923

00:54:28.090 --> 00:54:30.010 OK, now that we're hopefully maybe.

NOTE Confidence: 0.824961088076923

00:54:30.010 --> 00:54:32.236 More on the same page about plasticity.

NOTE Confidence: 0.824961088076923

00:54:32.240 --> 00:54:34.784 Can we then start to think

NOTE Confidence: 0.824961088076923

00:54:34.784 --> 00:54:36.480 about markers of plasticity?

NOTE Confidence: 0.824961088076923

00:54:36.480 --> 00:54:38.013 Because we're a lot of us are

NOTE Confidence: 0.824961088076923

00:54:38.013 --> 00:54:39.200 really interested in plasticity.

NOTE Confidence: 0.824961088076923

00:54:39.200 --> 00:54:41.290 But plasticity means something really

NOTE Confidence: 0.824961088076923

00:54:41.290 --> 00:54:43.380 different to a neuroscientist who

NOTE Confidence: 0.824961088076923

00:54:43.441 --> 00:54:45.937 thinks about it at a synaptic level and

NOTE Confidence: 0.824961088076923

00:54:45.937 --> 00:54:48.267 someone who's thinking about it in the

NOTE Confidence: 0.824961088076923

00:54:48.267 --> 00:54:50.674 context of like stroke recovery for example,

NOTE Confidence: 0.824961088076923

00:54:50.674 --> 00:54:52.182 and and rehabilitation and

NOTE Confidence: 0.824961088076923

00:54:52.182 --> 00:54:53.690 those kinds of outcomes.
NOTE Confidence: 0.824961088076923

00:54:53.690 --> 00:54:55.796 So I think this is another,
NOTE Confidence: 0.824961088076923

00:54:55.800 --> 00:54:57.606 I think this is a Holy Grail
NOTE Confidence: 0.824961088076923

00:54:57.606 --> 00:54:59.239 for our field is to really,
NOTE Confidence: 0.824961088076923

00:54:59.240 --> 00:55:01.046 I think if we nail the sensitive.
NOTE Confidence: 0.824961088076923

00:55:01.050 --> 00:55:02.772 Period question and we did that through
NOTE Confidence: 0.824961088076923

00:55:02.772 --> 00:55:04.536 plasticity and had a good markers of that.
NOTE Confidence: 0.824961088076923

00:55:04.540 --> 00:55:05.878 I think that would be pretty,
NOTE Confidence: 0.824961088076923

00:55:05.880 --> 00:55:07.340 pretty amazing.
NOTE Confidence: 0.824961088076923

00:55:07.340 --> 00:55:07.760 Thank you.
NOTE Confidence: 0.76753051875

00:55:12.070 --> 00:55:15.726 Aye, thank you for such an amazing talk,
NOTE Confidence: 0.76753051875

00:55:15.730 --> 00:55:19.360 so I'm very curious about.
NOTE Confidence: 0.76753051875

00:55:19.360 --> 00:55:22.144 The effects that you observe on
NOTE Confidence: 0.76753051875

00:55:22.144 --> 00:55:25.175 the protective effects of the DNA
NOTE Confidence: 0.76753051875

00:55:25.175 --> 00:55:27.905 methylation changes that specific loci.
NOTE Confidence: 0.76753051875

00:55:27.910 --> 00:55:29.848 Could you elaborate a little bit

NOTE Confidence: 0.76753051875

00:55:29.848 --> 00:55:32.280 more how they were defined and also?

NOTE Confidence: 0.76753051875

00:55:32.280 --> 00:55:36.180 Will that be dependent depending on?

NOTE Confidence: 0.76753051875

00:55:36.180 --> 00:55:38.592 That it occurred during the sensitive

NOTE Confidence: 0.76753051875

00:55:38.592 --> 00:55:41.882 periods and that you like look at that

NOTE Confidence: 0.76753051875

00:55:41.882 --> 00:55:43.887 during that specific time whereas.

NOTE Confidence: 0.76753051875

00:55:43.890 --> 00:55:46.314 You know, compared to auto hold for example.

NOTE Confidence: 0.76753051875

00:55:46.320 --> 00:55:49.567 How would that compare? Um, like?

NOTE Confidence: 0.76753051875

00:55:49.567 --> 00:55:52.766 I will argue that maybe adulthood we

NOTE Confidence: 0.76753051875

00:55:52.766 --> 00:55:55.849 will observe more deleterious effects.

NOTE Confidence: 0.76753051875

00:55:55.850 --> 00:55:59.090 But you know, I wonder about.

NOTE Confidence: 0.76753051875

00:55:59.090 --> 00:56:00.434 Your thoughts on that and I

NOTE Confidence: 0.76753051875

00:56:00.434 --> 00:56:01.330 have a second question,

NOTE Confidence: 0.76753051875

00:56:01.330 --> 00:56:02.569 but if you want to answer that,

NOTE Confidence: 0.76753051875

00:56:02.570 --> 00:56:04.676 thank you for just asking one at a time.

NOTE Confidence: 0.76753051875

00:56:04.680 --> 00:56:07.110 That's that's great.

NOTE Confidence: 0.76753051875

00:56:07.110 --> 00:56:07.794 I think so.
NOTE Confidence: 0.76753051875

00:56:07.794 --> 00:56:09.749 I think there's a lot to still unpack
NOTE Confidence: 0.76753051875

00:56:09.749 --> 00:56:11.842 in this mediation work and there's not
NOTE Confidence: 0.76753051875

00:56:11.842 --> 00:56:13.859 been from what we've seen any other
NOTE Confidence: 0.76753051875

00:56:13.859 --> 00:56:17.460 work that's been done in this space.
NOTE Confidence: 0.76753051875

00:56:17.460 --> 00:56:18.948 And it took a lot for us to
NOTE Confidence: 0.76753051875

00:56:18.948 --> 00:56:20.139 just figure out the methods,
NOTE Confidence: 0.76753051875

00:56:20.140 --> 00:56:20.772 you know,
NOTE Confidence: 0.76753051875

00:56:20.772 --> 00:56:22.036 because you're bringing these
NOTE Confidence: 0.76753051875

00:56:22.036 --> 00:56:23.628 methods that have been developed
NOTE Confidence: 0.76753051875

00:56:23.628 --> 00:56:25.553 typically for what we call like a
NOTE Confidence: 0.76753051875

00:56:25.553 --> 00:56:27.237 small data setting and then you're
NOTE Confidence: 0.76753051875

00:56:27.237 --> 00:56:29.271 applying it to data where you have,
NOTE Confidence: 0.76753051875

00:56:29.271 --> 00:56:31.326 you know, as you know,
NOTE Confidence: 0.76753051875

00:56:31.330 --> 00:56:33.700 500,000 different associations that you can,
NOTE Confidence: 0.76753051875

00:56:33.700 --> 00:56:34.423 you know, study.

NOTE Confidence: 0.76753051875

00:56:34.423 --> 00:56:36.540 So a lot of the time we spent,

NOTE Confidence: 0.76753051875

00:56:36.540 --> 00:56:37.166 you know,

NOTE Confidence: 0.76753051875

00:56:37.166 --> 00:56:40.208 was was built in on that and then we

NOTE Confidence: 0.76753051875

00:56:40.208 --> 00:56:42.498 carried forward our sensitive period

NOTE Confidence: 0.76753051875

00:56:42.498 --> 00:56:45.024 work to try to bring in more of this

NOTE Confidence: 0.76753051875

00:56:45.024 --> 00:56:46.196 information about these different

NOTE Confidence: 0.76753051875

00:56:46.196 --> 00:56:47.978 life course models to try to.

NOTE Confidence: 0.76753051875

00:56:47.980 --> 00:56:50.570 Understand, you know these effects.

NOTE Confidence: 0.76753051875

00:56:50.570 --> 00:56:51.386 I don't.

NOTE Confidence: 0.76753051875

00:56:51.386 --> 00:56:54.650 I was not expecting to see such variation.

NOTE Confidence: 0.76753051875

00:56:54.650 --> 00:56:56.547 I think the next set of questions

NOTE Confidence: 0.76753051875

00:56:56.547 --> 00:56:58.864 that will be really key is, you know,

NOTE Confidence: 0.76753051875

00:56:58.864 --> 00:57:01.013 we just looked at depression at one

NOTE Confidence: 0.76753051875

00:57:01.013 --> 00:57:03.068 point in time in late adolescence.

NOTE Confidence: 0.76753051875

00:57:03.070 --> 00:57:05.401 We can look at later markers of

NOTE Confidence: 0.76753051875

00:57:05.401 --> 00:57:07.628 depression to see if this persists.
NOTE Confidence: 0.76753051875

00:57:07.630 --> 00:57:09.610 And I think, you know,
NOTE Confidence: 0.76753051875

00:57:09.610 --> 00:57:11.779 I come from the camp of let's see it
NOTE Confidence: 0.76753051875

00:57:11.779 --> 00:57:14.205 once and if we see something interesting,
NOTE Confidence: 0.76753051875

00:57:14.210 --> 00:57:16.296 let's try to see it again in
NOTE Confidence: 0.76753051875

00:57:16.296 --> 00:57:17.990 another data set and try to.
NOTE Confidence: 0.76753051875

00:57:17.990 --> 00:57:18.690 Replicate it.
NOTE Confidence: 0.76753051875

00:57:18.690 --> 00:57:21.920 And then that's where let's if we do that,
NOTE Confidence: 0.76753051875

00:57:21.920 --> 00:57:24.195 then let's start digging in on biology.
NOTE Confidence: 0.76753051875

00:57:24.200 --> 00:57:25.856 Let's get into cell culture models,
NOTE Confidence: 0.76753051875

00:57:25.860 --> 00:57:27.960 let's get into animal models.
NOTE Confidence: 0.76753051875

00:57:27.960 --> 00:57:29.196 Let's, you know,
NOTE Confidence: 0.76753051875

00:57:29.196 --> 00:57:32.420 really try to probe this to see if this is,
NOTE Confidence: 0.76753051875

00:57:32.420 --> 00:57:34.898 you know, real and what might be
NOTE Confidence: 0.76753051875

00:57:34.898 --> 00:57:37.410 some of the the consequences.
NOTE Confidence: 0.76753051875

00:57:37.410 --> 00:57:37.972 Thank you.

NOTE Confidence: 0.76753051875

00:57:37.972 --> 00:57:40.220 And then make my second question is sort

NOTE Confidence: 0.76753051875

00:57:40.281 --> 00:57:42.598 of a follow-up of their previous question,

NOTE Confidence: 0.76753051875

00:57:42.600 --> 00:57:43.976 how these sensitive fears

NOTE Confidence: 0.76753051875

00:57:43.976 --> 00:57:45.696 are defined in terms of?

NOTE Confidence: 0.820937503076923

00:57:48.200 --> 00:57:52.632 The age or and following up on on

NOTE Confidence: 0.820937503076923

00:57:52.632 --> 00:57:56.235 the definition of of that in terms of

NOTE Confidence: 0.820937503076923

00:57:56.235 --> 00:57:58.260 like have you considered biological

NOTE Confidence: 0.820937503076923

00:57:58.260 --> 00:58:01.403 age like not only tell me your land

NOTE Confidence: 0.820937503076923

00:58:01.403 --> 00:58:03.795 but also epigenetic aging and I

NOTE Confidence: 0.820937503076923

00:58:03.795 --> 00:58:06.225 always wonder what does that mean

NOTE Confidence: 0.820937503076923

00:58:06.225 --> 00:58:08.712 during childhood because we often see

NOTE Confidence: 0.820937503076923

00:58:08.712 --> 00:58:11.220 accelerated at beginning of aging in

NOTE Confidence: 0.820937503076923

00:58:11.301 --> 00:58:13.466 adults being associated with trauma

NOTE Confidence: 0.820937503076923

00:58:13.466 --> 00:58:16.590 but that what does that really mean.

NOTE Confidence: 0.820937503076923

00:58:16.590 --> 00:58:20.286 In childhood and if these could be?

NOTE Confidence: 0.820937503076923

00:58:20.290 --> 00:58:23.164 A marker for biological aging to
NOTE Confidence: 0.820937503076923

00:58:23.164 --> 00:58:25.080 define better sensitive periods.
NOTE Confidence: 0.820937503076923

00:58:25.080 --> 00:58:27.150 Yeah, that's a great question.
NOTE Confidence: 0.820937503076923

00:58:27.150 --> 00:58:28.390 So believe it or not,
NOTE Confidence: 0.820937503076923

00:58:28.390 --> 00:58:30.098 I think it's counterintuitive in a way
NOTE Confidence: 0.820937503076923

00:58:30.098 --> 00:58:32.206 for us to think about kids as aging,
NOTE Confidence: 0.820937503076923

00:58:32.210 --> 00:58:33.410 but they are.
NOTE Confidence: 0.820937503076923

00:58:33.410 --> 00:58:36.220 And we, we did a study actually in
NOTE Confidence: 0.820937503076923

00:58:36.220 --> 00:58:38.417 alsbach where we showed that some
NOTE Confidence: 0.820937503076923

00:58:38.417 --> 00:58:40.787 early life markers of stress were
NOTE Confidence: 0.820937503076923

00:58:40.787 --> 00:58:42.572 associated with accelerated aging at
NOTE Confidence: 0.820937503076923

00:58:42.572 --> 00:58:45.152 age 7 by as much as seven months.
NOTE Confidence: 0.820937503076923

00:58:45.152 --> 00:58:48.106 So a 7 year old could look,
NOTE Confidence: 0.820937503076923

00:58:48.110 --> 00:58:50.438 you know, Cellularly older than us.
NOTE Confidence: 0.820937503076923

00:58:50.440 --> 00:58:53.120 7 year old by they would look 7 point you
NOTE Confidence: 0.820937503076923

00:58:53.190 --> 00:58:56.070 know seven years with seven months added on.

NOTE Confidence: 0.820937503076923
00:58:56.070 --> 00:58:59.912 So I think for us we wanted to
NOTE Confidence: 0.820937503076923
00:58:59.912 --> 00:59:02.399 have in order to do the sensitive
NOTE Confidence: 0.820937503076923
00:59:02.399 --> 00:59:05.090 period work you need to either have.
NOTE Confidence: 0.820937503076923
00:59:05.090 --> 00:59:07.742 You ideally have repeated measures so
NOTE Confidence: 0.820937503076923
00:59:07.742 --> 00:59:11.558 that you can get these markers of timing,
NOTE Confidence: 0.820937503076923
00:59:11.560 --> 00:59:13.880 not that you're relying on
NOTE Confidence: 0.820937503076923
00:59:13.880 --> 00:59:14.808 retrospective reports.
NOTE Confidence: 0.820937503076923
00:59:14.810 --> 00:59:17.006 So we there's not a lot of data sets
NOTE Confidence: 0.820937503076923
00:59:17.006 --> 00:59:19.210 that have that repeated methylation data
NOTE Confidence: 0.820937503076923
00:59:19.210 --> 00:59:22.130 where you could derive those repeated scores.
NOTE Confidence: 0.820937503076923
00:59:22.130 --> 00:59:24.695 But we just got a grant last year where
NOTE Confidence: 0.820937503076923
00:59:24.695 --> 00:59:27.033 we're doing work in a South African
NOTE Confidence: 0.820937503076923
00:59:27.033 --> 00:59:29.308 cohort and where we're going to have,
NOTE Confidence: 0.820937503076923
00:59:29.310 --> 00:59:31.962 we're going to be driving epigenetic
NOTE Confidence: 0.820937503076923
00:59:31.962 --> 00:59:34.398 signatures at 1/3 and five and I think
NOTE Confidence: 0.820937503076923

00:59:34.398 --> 00:59:36.060 that would be a. Great opportunity.
NOTE Confidence: 0.820937503076923

00:59:36.060 --> 00:59:37.635 I'm glad you said this.
NOTE Confidence: 0.820937503076923

00:59:37.640 --> 00:59:39.684 I think this is something we should
NOTE Confidence: 0.820937503076923

00:59:39.684 --> 00:59:41.820 look into there and see if if how
NOTE Confidence: 0.820937503076923

00:59:41.820 --> 00:59:43.448 similar or different it is relative
NOTE Confidence: 0.820937503076923

00:59:43.448 --> 00:59:45.266 to findings you get for age.
NOTE Confidence: 0.883827367142857

00:59:46.170 --> 00:59:47.549 So I know we're almost at time,
NOTE Confidence: 0.883827367142857

00:59:47.550 --> 00:59:48.906 but I didn't realize Doctor Lombroso
NOTE Confidence: 0.883827367142857

00:59:48.906 --> 00:59:50.610 that your hand was up actually was
NOTE Confidence: 0.883827367142857

00:59:50.610 --> 00:59:51.870 fading into the background there.
NOTE Confidence: 0.883827367142857

00:59:51.870 --> 00:59:55.846 So Paul, please, please ask your question.
NOTE Confidence: 0.883827367142857

00:59:55.850 --> 00:59:57.732 So can you hear me?
NOTE Confidence: 0.883827367142857

00:59:57.732 --> 00:59:59.135 Yes. Yes. OK great.
NOTE Confidence: 0.883827367142857

00:59:59.135 --> 01:00:02.282 I I that was a fantastic talk and
NOTE Confidence: 0.883827367142857

01:00:02.282 --> 01:00:04.817 then specifically because it was
NOTE Confidence: 0.883827367142857

01:00:04.817 --> 01:00:07.348 introducing such a for me anyway a

NOTE Confidence: 0.883827367142857
01:00:07.348 --> 01:00:10.336 novel area couple of questions that
NOTE Confidence: 0.883827367142857
01:00:10.336 --> 01:00:12.560 I try to get my head around this.
NOTE Confidence: 0.883827367142857
01:00:12.560 --> 01:00:15.470 If a child has early onset
NOTE Confidence: 0.883827367142857
01:00:15.470 --> 01:00:20.280 depression or childhood psychosis
NOTE Confidence: 0.883827367142857
01:00:20.280 --> 01:00:23.939 or early childhood onset diabetes,
NOTE Confidence: 0.883827367142857
01:00:23.940 --> 01:00:25.695 are you saying that that there will be a
NOTE Confidence: 0.883827367142857
01:00:25.695 --> 01:00:29.788 marker for for in in the teeth of this event.
NOTE Confidence: 0.883827367142857
01:00:29.790 --> 01:00:33.378 And are the epigenetic.
NOTE Confidence: 0.883827367142857
01:00:33.380 --> 01:00:35.460 Findings,
NOTE Confidence: 0.883827367142857
01:00:35.460 --> 01:00:37.722 I would imagine they're all different
NOTE Confidence: 0.883827367142857
01:00:37.722 --> 01:00:40.560 in these three very distinct disorders.
NOTE Confidence: 0.883827367142857
01:00:40.560 --> 01:00:42.438 Just to help me understand,
NOTE Confidence: 0.883827367142857
01:00:42.438 --> 01:00:44.668 you probably already mentioned this, but
NOTE Confidence: 0.771631115
01:00:45.380 --> 01:00:46.658 no, I think it's a good,
NOTE Confidence: 0.771631115
01:00:46.660 --> 01:00:47.860 I think it's a good question.
NOTE Confidence: 0.771631115

01:00:47.860 --> 01:00:48.780 Pardon me, I don't know.
NOTE Confidence: 0.771631115

01:00:48.780 --> 01:00:51.084 I think I'm going to look
NOTE Confidence: 0.771631115

01:00:51.084 --> 01:00:53.100 here even though you're here.
NOTE Confidence: 0.771631115

01:00:53.100 --> 01:00:55.908 Trying to answer you, but Umm,
NOTE Confidence: 0.771631115

01:00:55.910 --> 01:00:58.318 so in terms of what we've seen so
NOTE Confidence: 0.771631115

01:00:58.318 --> 01:01:00.870 far with teeth and psychopathology.
NOTE Confidence: 0.771631115

01:01:00.870 --> 01:01:03.504 So we are correlating marker that's
NOTE Confidence: 0.771631115

01:01:03.504 --> 01:01:06.283 derived from micro CT imaging about
NOTE Confidence: 0.771631115

01:01:06.283 --> 01:01:09.103 how thick the enamel basically marker
NOTE Confidence: 0.771631115

01:01:09.103 --> 01:01:12.205 of enamel volume is and seeing that
NOTE Confidence: 0.771631115

01:01:12.205 --> 01:01:14.787 kids who have thinner volume have
NOTE Confidence: 0.771631115

01:01:14.787 --> 01:01:16.278 higher psychopathology symptoms.
NOTE Confidence: 0.771631115

01:01:16.278 --> 01:01:18.763 I think that's just correlational.
NOTE Confidence: 0.771631115

01:01:18.770 --> 01:01:21.724 Who knows whether this is actually causal.
NOTE Confidence: 0.771631115

01:01:21.730 --> 01:01:23.719 I think we need more studies to try to.
NOTE Confidence: 0.771631115

01:01:23.720 --> 01:01:24.710 Impact that.

NOTE Confidence: 0.771631115
01:01:24.710 --> 01:01:28.175 I think teeth might be a marker.
NOTE Confidence: 0.771631115
01:01:28.180 --> 01:01:30.476 So I think of teeth as the marker
NOTE Confidence: 0.771631115
01:01:30.476 --> 01:01:32.926 of early life stress and then
NOTE Confidence: 0.771631115
01:01:32.926 --> 01:01:34.279 potentially those biological
NOTE Confidence: 0.771631115
01:01:34.279 --> 01:01:36.964 markers of early life stress can
NOTE Confidence: 0.771631115
01:01:36.964 --> 01:01:39.059 be informative for mental health.
NOTE Confidence: 0.771631115
01:01:39.060 --> 01:01:41.628 I don't know that teeth necessarily
NOTE Confidence: 0.771631115
01:01:41.628 --> 01:01:44.333 independent of early life stress would
NOTE Confidence: 0.771631115
01:01:44.333 --> 01:01:46.638 be informative for mental health.
NOTE Confidence: 0.771631115
01:01:46.640 --> 01:01:47.017 However,
NOTE Confidence: 0.771631115
01:01:47.017 --> 01:01:49.656 I think there is maybe a kind
NOTE Confidence: 0.771631115
01:01:49.656 --> 01:01:52.076 of tooth brain access where
NOTE Confidence: 0.771631115
01:01:52.076 --> 01:01:54.184 teeth might be informative.
NOTE Confidence: 0.771631115
01:01:54.190 --> 01:01:56.590 For characterizing and understanding
NOTE Confidence: 0.771631115
01:01:56.590 --> 01:02:00.190 processes of brain development that might
NOTE Confidence: 0.771631115

01:02:00.267 --> 01:02:02.957 be harder to interrogate otherwise.
NOTE Confidence: 0.771631115

01:02:02.960 --> 01:02:06.119 So that's sort of my thought on on that.
NOTE Confidence: 0.771631115

01:02:06.120 --> 01:02:08.680 And then whether the epigenetic
NOTE Confidence: 0.771631115

01:02:08.680 --> 01:02:11.240 signatures are similar across disorders,
NOTE Confidence: 0.771631115

01:02:11.240 --> 01:02:15.038 we've not really looked at that,
NOTE Confidence: 0.771631115

01:02:15.040 --> 01:02:16.900 but I think it's something that
NOTE Confidence: 0.771631115

01:02:16.900 --> 01:02:19.039 that you know the work that has
NOTE Confidence: 0.771631115

01:02:19.039 --> 01:02:20.985 been done is more so where you
NOTE Confidence: 0.771631115

01:02:21.053 --> 01:02:23.221 group kids into internalizing
NOTE Confidence: 0.771631115

01:02:23.221 --> 01:02:24.847 versus externalizing symptoms.
NOTE Confidence: 0.771631115

01:02:24.850 --> 01:02:27.545 Part of the challenge is that you
NOTE Confidence: 0.771631115

01:02:27.545 --> 01:02:29.758 really just need incredibly large
NOTE Confidence: 0.771631115

01:02:29.758 --> 01:02:33.160 sample sizes in order to find potential
NOTE Confidence: 0.771631115

01:02:33.160 --> 01:02:36.375 signal when you bring epigenetic work
NOTE Confidence: 0.771631115

01:02:36.375 --> 01:02:39.382 to psychiatric disorders on the order of,
NOTE Confidence: 0.771631115

01:02:39.382 --> 01:02:42.210 you know, thousands, 10s of thousands.

NOTE Confidence: 0.771631115
01:02:42.210 --> 01:02:44.330 To give you context,
NOTE Confidence: 0.771631115
01:02:44.330 --> 01:02:47.130 you may or may not know about
NOTE Confidence: 0.771631115
01:02:47.130 --> 01:02:48.330 genetic association studies.
NOTE Confidence: 0.771631115
01:02:48.330 --> 01:02:50.556 Those are starting to see results.
NOTE Confidence: 0.771631115
01:02:50.560 --> 01:02:52.668 After 500,000, you know,
NOTE Confidence: 0.771631115
01:02:52.668 --> 01:02:54.249 a million participants,
NOTE Confidence: 0.771631115
01:02:54.250 --> 01:02:54.603 so.
NOTE Confidence: 0.771631115
01:02:54.603 --> 01:02:57.074 I think we're seeing more with epigenetic
NOTE Confidence: 0.771631115
01:02:57.074 --> 01:02:59.637 work starting to emerge with less than that,
NOTE Confidence: 0.771631115
01:02:59.640 --> 01:03:01.740 but it's still the scale is very,
NOTE Confidence: 0.771631115
01:03:01.740 --> 01:03:03.520 very large because these effects
NOTE Confidence: 0.771631115
01:03:03.520 --> 01:03:04.944 are are pretty small.
NOTE Confidence: 0.837287913181818
01:03:08.650 --> 01:03:10.312 Great. Well, thank you all for
NOTE Confidence: 0.837287913181818
01:03:10.312 --> 01:03:11.703 this rich discussion and please
NOTE Confidence: 0.837287913181818
01:03:11.703 --> 01:03:13.320 join me again in thanking Dr Dunn
NOTE Confidence: 0.837287913181818

01:03:13.320 --> 01:03:14.999 for a wonderful presentation.