WEBVTT

00:00:02.400 --> 00:00:03.200 Good afternoon,

NOTE Confidence: 0.937065946666667

00:00:07.680 --> 00:00:10.004 Okay. Next week we have a special

NOTE Confidence: 0.937065946666667

00:00:10.004 --> 00:00:12.200 speaker coming from Drexel University,

NOTE Confidence: 0.937065946666667

00:00:12.200 --> 00:00:15.464 Adam Bemporado, who is the author of a

NOTE Confidence: 0.937065946666667

00:00:15.464 --> 00:00:17.672 recent book called A Minor Revolution,

NOTE Confidence: 0.937065946666667

00:00:17.680 --> 00:00:19.140 Wonderful book about why we

NOTE Confidence: 0.937065946666667

00:00:19.140 --> 00:00:20.600 should be investing in children.

NOTE Confidence: 0.937065946666667

00:00:20.600 --> 00:00:22.371 So if you are not sure whether

NOTE Confidence: 0.937065946666667

00:00:22.371 --> 00:00:23.920 investing in children is a good idea,

NOTE Confidence: 0.937065946666667

00:00:23.920 --> 00:00:26.401 come next week. Further,

NOTE Confidence: 0.937065946666667

00:00:26.401 --> 00:00:28.754 if you don't think it's good after today,

NOTE Confidence: 0.937065946666667

00:00:28.754 --> 00:00:30.264 you're going to change your

NOTE Confidence: 0.937065946666667

00:00:30.264 --> 00:00:31.350 mind because today's talking,

NOTE Confidence: 0.937065946666667

00:00:31.350 --> 00:00:32.310 among many other things,

NOTE Confidence: 0.937065946666667

00:00:32.310 --> 00:00:34.590 is about investing in children.

NOTE Confidence: 0.937065946666667

00:00:34.590 --> 00:00:38.847 So it's a double honor for me today to

NOTE Confidence: 0.937065946666667

00:00:38.847 --> 00:00:42.190 introduce today's lecture and lecturer

NOTE Confidence: 0.937065946666667

00:00:42.190 --> 00:00:44.863 and my what a what a pairing we have.

NOTE Confidence: 0.937065946666667

00:00:44.870 --> 00:00:47.468 So today is the Donald Cohen

NOTE Confidence: 0.937065946666667

00:00:47.468 --> 00:00:50.082 Memorial Lecture as we sit here

NOTE Confidence: 0.937065946666667

00:00:50.082 --> 00:00:52.090 in the Donald Cohen Auditorium,

NOTE Confidence: 0.937065946666667

00:00:52.090 --> 00:00:53.350 many of us.

NOTE Confidence: 0.937065946666667

00:00:53.350 --> 00:00:57.209 Got to know Donald as a great scholar,

NOTE Confidence: 0.937065946666667

00:00:57.210 --> 00:01:00.255 leader in the in many fields developmental

NOTE Confidence: 0.937065946666667

00:01:00.255 --> 00:01:02.194 psychopathology and autism particularly

NOTE Confidence: 0.937065946666667

00:01:02.194 --> 00:01:05.190 relevant today and and also as an

NOTE Confidence: 0.937065946666667

00:01:05.190 --> 00:01:07.370 incredible mentor to many of us,

NOTE Confidence: 0.937065946666667

00:01:07.370 --> 00:01:08.240 Linda Mays,

NOTE Confidence: 0.937065946666667

00:01:08.240 --> 00:01:10.850 Andres Martin and our speaker included.

00:01:13.410 --> 00:01:17.270 So there's the Donald Cohen angle to

00:01:17.270 --> 00:01:19.580 today's talk and then of course there's

00:01:19.580 --> 00:01:22.139 the Ami Clinton angle to today's talk.

00:01:22.140 --> 00:01:24.540 Many of us know and yes,

00:01:24.540 --> 00:01:28.060 love Ami Klin and have for many years.

00:01:28.060 --> 00:01:32.822 Ami was here between 1989 and 2010,

00:01:32.822 --> 00:01:36.321 so he had a long run here at the Child

00:01:36.321 --> 00:01:39.180 Study Center and then 12 years ago.

00:01:39.180 --> 00:01:43.506 Alas for us and oh fortune for Atlanta,

00:01:43.506 --> 00:01:47.000 he was recruited as the founding director

00:01:47.000 --> 00:01:50.114 of the Market Center for Autism, which is.

00:01:50.114 --> 00:01:52.949 Just an unbelievable creation that

00:01:52.949 --> 00:01:56.918 you're going to be hearing about today.

00:01:56.920 --> 00:02:00.720 Ami is originally from Brazil.

00:02:00.720 --> 00:02:03.848 His schooling was both in Brazil than in

00:02:03.848 --> 00:02:08.038 Israel and ultimately his PhD in London.

NOTE Confidence: 0.94629164

00:02:08.040 --> 00:02:11.095 When we were reminiscing paying

NOTE Confidence: 0.94629164

00:02:11.095 --> 00:02:14.416 his debt for his PhD studies,

NOTE Confidence: 0.94629164

00:02:14.416 --> 00:02:18.066 he worked as a delivery boy in

NOTE Confidence: 0.94629164

00:02:18.066 --> 00:02:20.090 a motorcycle through London.

NOTE Confidence: 0.94629164

00:02:20.090 --> 00:02:22.370 And I think that the back of the

NOTE Confidence: 0.94629164

00:02:22.370 --> 00:02:25.030 thing read anything, anywhere,

NOTE Confidence: 0.94629164

00:02:25.030 --> 00:02:29.090 anytime, anything to any to anywhere.

NOTE Confidence: 0.94629164

00:02:29.090 --> 00:02:32.044 And thus a great career was born.

NOTE Confidence: 0.94629164

00:02:32.050 --> 00:02:34.890 When Donald saw this spectacle,

NOTE Confidence: 0.94629164

00:02:34.890 --> 00:02:37.680 he said you are not going to endanger that

NOTE Confidence: 0.94629164

00:02:37.680 --> 00:02:40.245 brain of yours with or without a helmet.

NOTE Confidence: 0.94629164

00:02:40.250 --> 00:02:41.429 This must stop.

NOTE Confidence: 0.94629164

00:02:41.429 --> 00:02:45.235 And Donald brought on me to New Haven and

NOTE Confidence: 0.94629164

00:02:45.235 --> 00:02:49.050 a great, great, great career was born.

NOTE Confidence: 0.94629164

00:02:49.050 --> 00:02:51.242 And I'll.

NOTE Confidence: 0.94629164

00:02:51.242 --> 00:02:53.707 I'll let Ami tell things,

NOTE Confidence: 0.94629164

00:02:53.707 --> 00:02:55.763 but I want to just add one thing.

NOTE Confidence: 0.94629164

00:02:55.770 --> 00:02:58.330 Someone said, and I'm not sure who did,

NOTE Confidence: 0.94629164

00:02:58.330 --> 00:03:01.218 but someone said that beauty is

NOTE Confidence: 0.94629164

00:03:01.218 --> 00:03:03.330 the reflection of truth.

NOTE Confidence: 0.94629164

00:03:03.330 --> 00:03:06.050 Bob King, do you know who said that?

NOTE Confidence: 0.94629164

00:03:06.050 --> 00:03:08.650 Well, OK, so Bob King doesn't know,

NOTE Confidence: 0.94629164

00:03:08.650 --> 00:03:09.370 so it's unknown.

NOTE Confidence: 0.94629164

00:03:09.370 --> 00:03:11.650 But someone said that.

NOTE Confidence: 0.94629164

00:03:11.650 --> 00:03:13.650 Let me repeat that beauty

NOTE Confidence: 0.94629164

00:03:13.650 --> 00:03:15.790 is the reflection of truth.

NOTE Confidence: 0.94629164

00:03:15.790 --> 00:03:19.310 And when I've seen Ami's studies and papers,

NOTE Confidence: 0.94629164

00:03:19.310 --> 00:03:21.350 this is true.

NOTE Confidence: 0.95283295

00:03:21.510 --> 00:03:22.910 His science is beautiful.

NOTE Confidence: 0.917892243333333

00:03:23.630 --> 00:03:25.628 So his science is so beautiful.

NOTE Confidence: 0.917892243333333

00:03:25.630 --> 00:03:28.708 You want to frame it in your living room.

NOTE Confidence: 0.917892243333333

00:03:28.710 --> 00:03:29.950 You want to eat it.

NOTE Confidence: 0.917892243333333

00:03:29.950 --> 00:03:31.542 It's delicious. It's beautiful.

NOTE Confidence: 0.917892243333333

00:03:31.542 --> 00:03:34.814 But it's not just beautiful to the eye.

NOTE Confidence: 0.917892243333333

00:03:34.814 --> 00:03:37.390 It engenders deep truths,

NOTE Confidence: 0.917892243333333

00:03:37.390 --> 00:03:39.790 deep truths that through all of these

NOTE Confidence: 0.917892243333333

00:03:39.790 --> 00:03:41.674 incredible titles and positions

NOTE Confidence: 0.917892243333333

00:03:41.674 --> 00:03:44.500 and platform that Ami now has.

NOTE Confidence: 0.917892243333333

00:03:44.500 --> 00:03:46.420 He is taking to the city of Atlanta,

NOTE Confidence: 0.917892243333333

00:03:46.420 --> 00:03:48.040 to the state of Georgia

NOTE Confidence: 0.917892243333333

00:03:48.040 --> 00:03:49.660 and indeed to the world.

NOTE Confidence: 0.917892243333333

00:03:49.660 --> 00:03:51.658 And we are all the more fortunate for it.

NOTE Confidence: 0.917892243333333

00:03:51.660 --> 00:03:53.496 So Ami via Manila, La Casa.

NOTE Confidence: 0.917892243333333

00:03:53.500 --> 00:03:54.340 Welcome back home.

NOTE Confidence: 0.917892243333333

00:03:54.340 --> 00:03:55.180 Love having you,

NOTE Confidence: 0.9603804

00:04:03.590 --> 00:04:06.590 Andres. Thank you.

NOTE Confidence: 0.9352219

00:04:06.590 --> 00:04:09.350 This is, this is home away from home.

NOTE Confidence: 0.9352219

00:04:09.350 --> 00:04:11.110 Actually, this is, this is,

NOTE Confidence: 0.9352219

00:04:11.110 --> 00:04:13.945 this is the home I grew up,

NOTE Confidence: 0.9352219

00:04:13.950 --> 00:04:14.760 certainly intellectually.

NOTE Confidence: 0.9352219

00:04:14.760 --> 00:04:16.785 Thank you for just very,

NOTE Confidence: 0.9352219

00:04:16.790 --> 00:04:19.340 very generous introduction.

NOTE Confidence: 0.9352219

00:04:19.340 --> 00:04:21.338 The fact is that I owe,

NOTE Confidence: 0.9352219

00:04:21.340 --> 00:04:23.500 I owe my my, my intellectual,

NOTE Confidence: 0.9352219

00:04:23.500 --> 00:04:24.739 my professional career,

NOTE Confidence: 0.9352219

00:04:24.739 --> 00:04:26.806 my clinical career to everything

NOTE Confidence: 0.9352219

00:04:26.806 --> 00:04:28.871 that happened between those years

NOTE Confidence: 0.9352219

00:04:28.871 --> 00:04:31.050 that you've mentioned and some of

NOTE Confidence: 0.9352219

00:04:31.050 --> 00:04:33.101 those giants that I was influenced by

NOTE Confidence: 0.9352219

00:04:33.165 --> 00:04:35.258 are sitting right now in this room.

NOTE Confidence: 0.9352219

00:04:35.260 --> 00:04:36.976 And so thank you, thank you,

NOTE Confidence: 0.9352219

00:04:36.980 --> 00:04:38.496 thank you, thank you,

NOTE Confidence: 0.9352219

00:04:38.496 --> 00:04:40.770 thank you for everything that you've

NOTE Confidence: 0.9352219

00:04:40.838 --> 00:04:45.136 done so for me being in this hall.

NOTE Confidence: 0.9352219

00:04:45.140 --> 00:04:48.178 Is Needless to say, is very emotional.

NOTE Confidence: 0.9352219

00:04:48.180 --> 00:04:49.400 There are some very important

NOTE Confidence: 0.9352219

00:04:49.400 --> 00:04:50.620 people that influence my life.

NOTE Confidence: 0.9352219

00:04:50.620 --> 00:04:52.396 You mentioned Donald.

NOTE Confidence: 0.9352219

00:04:52.396 --> 00:04:53.580 Donald, yes.

NOTE Confidence: 0.9352219

00:04:53.580 --> 00:04:55.884 I was the only dispatch writer

NOTE Confidence: 0.9352219

00:04:55.884 --> 00:04:58.763 in London with a PhD and and

NOTE Confidence: 0.9352219

00:04:58.763 --> 00:05:00.858 meeting him at Swiss Cottage,

NOTE Confidence: 0.9352219

00:05:00.860 --> 00:05:03.875 he went beyond the way that I was dressed

NOTE Confidence: 0.9352219

00:05:03.875 --> 00:05:06.240 and obviously did thanks to the larger.

NOTE Confidence: 0.9352219

00:05:06.240 --> 00:05:08.271 So she's hot and you could see that

NOTE Confidence: 0.9352219

00:05:08.271 --> 00:05:09.546 maybe there was some potential

NOTE Confidence: 0.9352219

00:05:09.546 --> 00:05:11.179 and that I could come here.

00:05:11.180 --> 00:05:12.950 But he has been present in

00:05:12.950 --> 00:05:14.130 our lives every day.

00:05:14.130 --> 00:05:17.810 And I cannot thank him for all that

00:05:17.810 --> 00:05:21.490 he's done on my behalf of the years.

00:05:21.490 --> 00:05:24.034 There are others that I would

00:05:24.034 --> 00:05:25.730 like to briefly remember.

00:05:25.730 --> 00:05:28.928 Dom and Sarah. They adopted me.

00:05:28.930 --> 00:05:33.382 They held my American wedding in

00:05:33.382 --> 00:05:35.244 their house and they cooked for it.

00:05:35.250 --> 00:05:36.898 And I miss them.

00:05:36.898 --> 00:05:38.958 I miss them really badly.

00:05:38.960 --> 00:05:41.228 And then there are the folks that

00:05:41.228 --> 00:05:43.456 I work for a long, long, long,

00:05:43.456 --> 00:05:45.752 long period of time in the trenches

00:05:45.752 --> 00:05:47.758 and I need to thank them too.

00:05:47.760 --> 00:05:49.632 Fred is not here,

NOTE Confidence: 0.9352219

00:05:49.632 --> 00:05:51.036 but I owe,

NOTE Confidence: 0.9352219

00:05:51.040 --> 00:05:53.945 I owe tremendous thanks to Fred for

NOTE Confidence: 0.9352219

00:05:53.945 --> 00:05:57.900 allowing me to share 20 years of his

NOTE Confidence: 0.9352219

00:05:57.900 --> 00:06:01.320 clinical life and that has been tremendous.

NOTE Confidence: 0.9352219

00:06:01.320 --> 00:06:03.740 And then Warren Jones

NOTE Confidence: 0.9352219

00:06:03.740 --> 00:06:06.160 somebody that I've been.

NOTE Confidence: 0.9352219

00:06:06.160 --> 00:06:08.680 Collaborating with for the past

NOTE Confidence: 0.9352219

00:06:08.680 --> 00:06:11.524 2223 years right here at the

NOTE Confidence: 0.9352219

00:06:11.524 --> 00:06:14.317 CDU 1st and everything that I'm

NOTE Confidence: 0.9352219

00:06:14.317 --> 00:06:17.117 going to present to you today is

NOTE Confidence: 0.9352219

00:06:17.117 --> 00:06:20.398 a cocreation with Warren Chance,

NOTE Confidence: 0.9352219

00:06:20.400 --> 00:06:21.602 OK Disclosures.

NOTE Confidence: 0.9352219

00:06:21.602 --> 00:06:24.006 This presentation includes research

NOTE Confidence: 0.9352219

00:06:24.006 --> 00:06:25.809 related to investigational

NOTE Confidence: 0.9352219

00:06:25.809 --> 00:06:27.340 device development.

NOTE Confidence: 0.9352219

00:06:27.340 --> 00:06:29.340 Warren and myself are Invent

NOTE Confidence: 0.9352219

00:06:29.340 --> 00:06:30.540 Inventors patent holders.

NOTE Confidence: 0.9352219

00:06:30.540 --> 00:06:32.493 This has been licensed to this company

NOTE Confidence: 0.9352219

00:06:32.493 --> 00:06:33.980 called Early Tech Diagnostics,

NOTE Confidence: 0.9352219

00:06:33.980 --> 00:06:35.700 which evaluates medical technologies

NOTE Confidence: 0.9352219

00:06:35.700 --> 00:06:37.850 and hopefully provides revenue to

NOTE Confidence: 0.9352219

00:06:37.850 --> 00:06:40.217 support treatment of children with autism.

NOTE Confidence: 0.9352219

00:06:40.220 --> 00:06:42.225 This external activity is monitored

NOTE Confidence: 0.9352219

00:06:42.225 --> 00:06:44.700 by the Dean at Emory University

NOTE Confidence: 0.9352219

00:06:44.700 --> 00:06:47.458 School of Medicine and off we go.

NOTE Confidence: 0.9352219

00:06:47.460 --> 00:06:52.409 Autism is a huge public health challenge.

NOTE Confidence: 0.9352219

00:06:52.410 --> 00:06:55.002 You'll know one in 36 is the most

NOTE Confidence: 0.9352219

00:06:55.002 --> 00:06:57.689 common complex near developmental condition.

NOTE Confidence: 0.9352219

00:06:57.690 --> 00:07:00.534 And I like to to think in terms of

NOTE Confidence: 0.9352219

00:07:00.534 --> 00:07:02.989 the fact that 95,000 children will

NOTE Confidence: 0.9352219

00:07:02.989 --> 00:07:06.690 be born this year who will have autism.

NOTE Confidence: 0.9352219

00:07:06.690 --> 00:07:08.906 It's enormous societal cost,

NOTE Confidence: 0.9352219

00:07:08.906 --> 00:07:12.230 but most importantly an enormous economic

NOTE Confidence: 0.9352219

00:07:12.316 --> 00:07:15.006 burden to the individual families.

NOTE Confidence: 0.9352219

00:07:15.010 --> 00:07:18.241 The good news is that early

NOTE Confidence: 0.9352219

00:07:18.241 --> 00:07:20.134 diagnosis and early.

NOTE Confidence: 0.9352219

00:07:20.134 --> 00:07:23.289 Intervention and support can optimize

NOTE Confidence: 0.9352219

00:07:23.289 --> 00:07:26.811 outcomes that are going to make a

NOTE Confidence: 0.9352219

00:07:26.811 --> 00:07:29.630 difference in this children's lifetimes.

NOTE Confidence: 0.9352219

00:07:29.630 --> 00:07:32.070 And here is the not so good thing,

NOTE Confidence: 0.9352219

00:07:32.070 --> 00:07:33.738 Even though we've learned for the

NOTE Confidence: 0.9352219

00:07:33.738 --> 00:07:35.598 past 20 years and the American

NOTE Confidence: 0.9352219

00:07:35.598 --> 00:07:37.318 Academy of Pediatrics has recognizes

NOTE Confidence: 0.9352219

00:07:37.318 --> 00:07:38.350 at least from

NOTE Confidence: 0.943128749285714

00:07:38.350 --> 00:07:41.108 2007, the median age of diagnosis of

NOTE Confidence: 0.943128749285714

00:07:41.108 --> 00:07:44.292 autism in this country is still late around

NOTE Confidence: 0.943128749285714

00:07:44.292 --> 00:07:47.835 4:00 to 5:00 and a half, and even later.

NOTE Confidence: 0.943128749285714

00:07:47.835 --> 00:07:50.135 For low income families,

NOTE Confidence: 0.943128749285714

00:07:50.140 --> 00:07:52.570 for minority families, and to rural

NOTE Confidence: 0.943128749285714

00:07:52.570 --> 00:07:55.100 in families from rural communities.

NOTE Confidence: 0.943128749285714

00:07:55.100 --> 00:07:57.068 And one of the things contributing

NOTE Confidence: 0.943128749285714

00:07:57.068 --> 00:07:59.512 to this challenge is the fact that we

NOTE Confidence: 0.943128749285714

00:07:59.512 --> 00:08:01.659 don't have a lot of cautions in life.

NOTE Confidence: 0.943128749285714

00:08:01.660 --> 00:08:03.820 We don't have a lot of Jamie's in life,

NOTE Confidence: 0.943128749285714

00:08:03.820 --> 00:08:05.896 We don't have many extra clinicians.

NOTE Confidence: 0.943128749285714

00:08:05.900 --> 00:08:08.000 So in the community,

NOTE Confidence: 0.943128749285714

00:08:08.000 --> 00:08:10.500 Oh my God, so good to see you

NOTE Confidence: 0.2193877

00:08:12.940 --> 00:08:15.224 Kyle. What a pleasure.

NOTE Confidence: 0.2193877

00:08:15.224 --> 00:08:18.360 I'm sorry, I just saw you sitting here.

NOTE Confidence: 0.2193877

00:08:18.360 --> 00:08:20.840 OK, good to see you.

NOTE Confidence: 0.2193877

00:08:20.840 --> 00:08:22.565 We don't have a sufficient

NOTE Confidence: 0.2193877

00:08:22.565 --> 00:08:23.600 number of clinicians.

NOTE Confidence: 0.2193877

00:08:23.600 --> 00:08:26.636 Therefore, out there in the community,

NOTE Confidence: 0.2193877

00:08:26.640 --> 00:08:29.608 families may wait years and years in

NOTE Confidence: 0.2193877

00:08:29.608 --> 00:08:32.120 order to see and to get a diagnosis.

NOTE Confidence: 0.2193877

00:08:32.120 --> 00:08:34.122 And you need a diagnosis in most

NOTE Confidence: 0.2193877

00:08:34.122 --> 00:08:36.079 situations in order to access services.

NOTE Confidence: 0.2193877

00:08:36.080 --> 00:08:37.914 So autism is a public health challenge,

NOTE Confidence: 0.2193877

00:08:37.920 --> 00:08:40.356 is also a public health opportunity.

NOTE Confidence: 0.2193877

00:08:40.360 --> 00:08:41.870 This is what we've learned

NOTE Confidence: 0.2193877

00:08:41.870 --> 00:08:43.839 in the past 20 years or so.

NOTE Confidence: 0.2193877

00:08:43.840 --> 00:08:46.680 Autism is the most strongly genetic of all

NOTE Confidence: 0.2193877

00:08:46.680 --> 00:08:49.039 complex neuro developmental conditions.

NOTE Confidence: 0.2193877

00:08:49.040 --> 00:08:50.797 If I have a child of autism,

NOTE Confidence: 0.2193877

00:08:50.800 --> 00:08:54.400 as you all know, my the younger child,

NOTE Confidence: 0.2193877

00:08:54.400 --> 00:08:59.359 one to two and five will also have autism.

NOTE Confidence: 0.2193877

00:08:59.360 --> 00:09:00.920 But the problem is of course,

NOTE Confidence: 0.2193877

00:09:00.920 --> 00:09:03.195 that the genetics of autism

NOTE Confidence: 0.2193877

00:09:03.195 --> 00:09:04.560 is enormously complex.

NOTE Confidence: 0.2193877

00:09:04.560 --> 00:09:06.558 There are hundreds and hundreds of

NOTE Confidence: 0.2193877

00:09:06.558 --> 00:09:08.659 genetic variants that have already been.

NOTE Confidence: 0.2193877

00:09:08.660 --> 00:09:09.725 Implicated in autism.

NOTE Confidence: 0.2193877

00:09:09.725 --> 00:09:12.210 And yet you don't go from genes

NOTE Confidence: 0.2193877

00:09:12.278 --> 00:09:14.018 to the symptoms of autism.

NOTE Confidence: 0.2193877

00:09:14.020 --> 00:09:17.814 And here is the hypothesis is that

NOTE Confidence: 0.2193877

00:09:17.814 --> 00:09:19.798 genetic liability actually disrupts.

NOTE Confidence: 0.2193877

00:09:19.798 --> 00:09:20.696 And Kyle,

NOTE Confidence: 0.2193877

00:09:20.696 --> 00:09:22.492 you would recognize something

NOTE Confidence: 0.2193877

00:09:22.492 --> 00:09:24.248 that you've contributed and

NOTE Confidence: 0.2193877

00:09:24.248 --> 00:09:26.606 thank you very much for training.

NOTE Confidence: 0.2193877

00:09:26.610 --> 00:09:28.290 Me too.

NOTE Confidence: 0.2193877

00:09:28.290 --> 00:09:28.923 Genetics,

NOTE Confidence: 0.2193877

00:09:28.923 --> 00:09:29.556 actually,

NOTE Confidence: 0.2193877

00:09:29.556 --> 00:09:32.088 that liability disrupts normative

NOTE Confidence: 0.2193877

00:09:32.088 --> 00:09:34.620 development and and autism

NOTE Confidence: 0.2193877

00:09:34.706 --> 00:09:38.030 becomes really the results of the

NOTE Confidence: 0.2193877

00:09:38.030 --> 00:09:40.246 disruption of normative development.

NOTE Confidence: 0.2193877

00:09:40.250 --> 00:09:41.874 And for that I need to start

NOTE Confidence: 0.2193877

00:09:41.874 --> 00:09:42.570 from the beginning.

NOTE Confidence: 0.2193877

00:09:42.570 --> 00:09:45.601 And the beginning is that babies are

NOTE Confidence: 0.2193877

00:09:45.601 --> 00:09:49.249 born in the state of utter fragility.

NOTE Confidence: 0.2193877

00:09:49.250 --> 00:09:51.086 If babies were left by themselves

NOTE Confidence: 0.2193877

00:09:51.086 --> 00:09:52.004 they would die.

NOTE Confidence: 0.2193877

00:09:52.010 --> 00:09:54.460 So God or nature made sure that

NOTE Confidence: 0.2193877

00:09:54.460 --> 00:09:57.167 this would not happen and and so

NOTE Confidence: 0.2193877

00:09:57.167 --> 00:09:59.537 babies when they are born anything

NOTE Confidence: 0.2193877

00:09:59.620 --> 00:10:02.086 in their surroundings that is going

NOTE Confidence: 0.2193877

00:10:02.086 --> 00:10:05.330 to sound like give us or smell or

NOTE Confidence: 0.2193877

00:10:05.330 --> 00:10:08.240 move or look or interact like give

NOTE Confidence: 0.2193877

00:10:08.240 --> 00:10:11.842 us is going to command the attention

NOTE Confidence: 0.2193877

00:10:11.842 --> 00:10:15.559 of newborns and and biology such

NOTE Confidence: 0.2193877

00:10:15.559 --> 00:10:17.874 that everything happens in past.

NOTE Confidence: 0.2193877

00:10:17.880 --> 00:10:20.536 And so in the same way that babies

NOTE Confidence: 0.2193877

00:10:20.536 --> 00:10:22.538 are oriented to the caregivers,

NOTE Confidence: 0.2193877

00:10:22.538 --> 00:10:24.768 caregivers of course are engaged

NOTE Confidence: 0.2193877

00:10:24.768 --> 00:10:26.240 with their babies.

NOTE Confidence: 0.2193877

00:10:26.240 --> 00:10:29.915 And it's out of this mutually reinforcing

NOTE Confidence: 0.2193877

00:10:29.915 --> 00:10:32.200 choreography that brain moves forward.

NOTE Confidence: 0.2193877

00:10:32.200 --> 00:10:34.840 And that's a very important concept.

NOTE Confidence: 0.2193877

00:10:34.840 --> 00:10:35.492 In fact,

NOTE Confidence: 0.2193877

00:10:35.492 --> 00:10:37.122 these are the three concepts

NOTE Confidence: 0.2193877

00:10:37.122 --> 00:10:39.345 that I want to make sure these

NOTE Confidence: 0.2193877

00:10:39.345 --> 00:10:41.864 are coonesque set of concepts.

NOTE Confidence: 0.2193877

00:10:41.864 --> 00:10:44.088 They are Kyle Esque.

NOTE Confidence: 0.2193877

00:10:44.090 --> 00:10:45.970 Or they are Sally Prevention.

NOTE Confidence: 0.2193877

00:10:45.970 --> 00:10:47.610 I don't know how do you do that,

NOTE Confidence: 0.2193877

00:10:47.610 --> 00:10:47.897 Kyle,

NOTE Confidence: 0.2193877

00:10:47.897 --> 00:10:49.906 but all of these are concepts that

NOTE Confidence: 0.2193877

00:10:49.906 --> 00:10:51.866 have been near and dear to most

NOTE Confidence: 0.2193877

00:10:51.866 --> 00:10:53.770 of us working with young children.

NOTE Confidence: 0.2193877

00:10:53.770 --> 00:10:56.434 In this building #1 babies are

NOTE Confidence: 0.2193877

00:10:56.434 --> 00:10:58.210 born to socially Orient.

NOTE Confidence: 0.2193877

00:10:58.210 --> 00:10:58.894 Second,

NOTE Confidence: 0.2193877

00:10:58.894 --> 00:11:02.314 what moves brain forward is

NOTE Confidence: 0.2193877

00:11:02.314 --> 00:11:04.366 reciprocal social interaction.

NOTE Confidence: 0.2193877

00:11:04.370 --> 00:11:06.080 Simply placing a child in front

NOTE Confidence: 0.2193877

00:11:06.080 --> 00:11:07.830 of television is not going to

NOTE Confidence: 0.2193877

00:11:07.830 --> 00:11:08.926 make the child speak.

NOTE Confidence: 0.2193877

00:11:08.930 --> 00:11:11.282 You need a somebody on the

NOTE Confidence: 0.2193877

00:11:11.282 --> 00:11:13.320 other side engaging that baby.

NOTE Confidence: 0.2193877

00:11:13.320 --> 00:11:14.433 Reciprocal social interaction.

NOTE Confidence: 0.2193877

00:11:14.433 --> 00:11:16.822 And the third concept, of course,

NOTE Confidence: 0.2193877

00:11:16.822 --> 00:11:19.077 is the one of neuroplasticity,

NOTE Confidence: 0.2193877

00:11:19.080 --> 00:11:22.473 because this is the first two years of life,

NOTE Confidence: 0.2193877

00:11:22.480 --> 00:11:25.345 is the period of maximal

NOTE Confidence: 0.2193877

00:11:25.345 --> 00:11:27.637 neuroplasticity for our lifetimes.

NOTE Confidence: 0.2193877

00:11:27.640 --> 00:11:29.752 By the time that we celebrate

NOTE Confidence: 0.2193877

00:11:29.752 --> 00:11:31.160 the baby's 1st birthday,

NOTE Confidence: 0.2193877

00:11:31.160 --> 00:11:33.920 that baby's brain has doubled and

NOTE Confidence: 0.2193877

00:11:33.920 --> 00:11:35.760 synaptic density has quadrupled.

NOTE Confidence: 0.2193877

00:11:35.760 --> 00:11:38.344 Really beginning to reposit.

NOTE Confidence: 0.2193877

00:11:38.344 --> 00:11:40.928 Those early experiences that

NOTE Confidence: 0.2193877

00:11:40.928 --> 00:11:42.220 babies have

NOTE Confidence: 0.948639766666667

00:11:42.319 --> 00:11:45.879 from the first days and weeks of life.

NOTE Confidence: 0.948639766666667

00:11:45.880 --> 00:11:47.440 So in many different ways,

NOTE Confidence: 0.948639766666667

00:11:47.440 --> 00:11:50.280 how state is more than once to date.

NOTE Confidence: 0.948639766666667

00:11:50.280 --> 00:11:53.311 Brain structure and function is the physical

NOTE Confidence: 0.948639766666667

00:11:53.311 --> 00:11:55.840 instantiation of those early experiences,

NOTE Confidence: 0.948639766666667

00:11:55.840 --> 00:11:57.796 and we need to remember that.

NOTE Confidence: 0.948639766666667

00:11:57.800 --> 00:12:01.676 OK, So what about autism then?

NOTE Confidence: 0.948639766666667

00:12:01.680 --> 00:12:04.319 Kasha wrote at least two papers that

NOTE Confidence: 0.948639766666667

00:12:04.319 --> 00:12:06.889 I remember on parental concerns.

NOTE Confidence: 0.948639766666667

00:12:06.890 --> 00:12:08.330 So parents are concerned about their

NOTE Confidence: 0.948639766666667

00:12:08.330 --> 00:12:10.385 children from very, very early on.

NOTE Confidence: 0.948639766666667

00:12:10.385 --> 00:12:12.954 But it takes years for parents

NOTE Confidence: 0.948639766666667

00:12:12.954 --> 00:12:15.306 to access experts who will be

NOTE Confidence: 0.948639766666667

00:12:15.306 --> 00:12:17.688 able to diagnose the child.

NOTE Confidence: 0.948639766666667

00:12:17.690 --> 00:12:20.594 And that diagnosis is typically the

NOTE Confidence: 0.948639766666667

00:12:20.594 --> 00:12:23.160 ticket to early intervention, to early

NOTE Confidence: 0.948639766666667

00:12:23.160 --> 00:12:25.050 treatment in support of the families,

00:12:25.050 --> 00:12:26.610 the median age I already mentioned.

00:12:26.610 --> 00:12:29.650 But the issue is this is an issue of access.

00:12:29.650 --> 00:12:31.030 There are not many child

00:12:31.030 --> 00:12:32.410 study centers in this country.

00:12:32.410 --> 00:12:34.126 In fact, there are not many

00:12:34.126 --> 00:12:35.740 specialized centers in this country.

00:12:35.740 --> 00:12:38.619 Remember, 95,000 children are

00:12:38.619 --> 00:12:40.617 born every year who have autism.

00:12:40.620 --> 00:12:42.902 So this is the work that we've

00:12:42.902 --> 00:12:45.500 been trying to sort of to advance.

00:12:45.500 --> 00:12:48.740 We need to go, We don't want to replace,

00:12:48.740 --> 00:12:50.093 As for clinicians,

00:12:50.093 --> 00:12:51.897 people like even myself,

00:12:51.900 --> 00:12:53.844 but we need to to give

00:12:53.844 --> 00:12:55.140 greater access to families,

00:12:55.140 --> 00:12:56.890 to high quality diagnostic services

NOTE Confidence: 0.948639766666667

00:12:56.890 --> 00:12:59.340 so that the children can be treated.

NOTE Confidence: 0.948639766666667

00:12:59.340 --> 00:13:02.300 We need to use biomarkers,

NOTE Confidence: 0.948639766666667

00:13:02.300 --> 00:13:04.250 they need to be objective

NOTE Confidence: 0.948639766666667

00:13:04.250 --> 00:13:05.420 and quantitative dimension.

NOTE Confidence: 0.948639766666667

00:13:05.420 --> 00:13:06.860 They need to be standardized.

NOTE Confidence: 0.948639766666667

00:13:06.860 --> 00:13:08.940 They need to be cost efficient so that

NOTE Confidence: 0.948639766666667

00:13:08.940 --> 00:13:11.100 we can scale them and they need to be.

NOTE Confidence: 0.948639766666667

00:13:11.100 --> 00:13:13.012 And we need to be able to capture

NOTE Confidence: 0.948639766666667

00:13:13.012 --> 00:13:14.776 the core features of the condition

NOTE Confidence: 0.948639766666667

00:13:14.776 --> 00:13:16.618 so that when we are devising

NOTE Confidence: 0.948639766666667

00:13:16.678 --> 00:13:18.658 treatment plants that we are focusing

NOTE Confidence: 0.948639766666667

00:13:18.658 --> 00:13:20.660 on those things that are pivotal

NOTE Confidence: 0.948639766666667

00:13:20.660 --> 00:13:22.360 milestones for children who are

NOTE Confidence: 0.948639766666667

00:13:22.360 --> 00:13:24.340 going to push forward speech,

NOTE Confidence: 0.948639766666667

00:13:24.340 --> 00:13:26.143 language and communication

NOTE Confidence: 0.948639766666667

00:13:26.143 --> 00:13:29.148 and cognition and so forth.

NOTE Confidence: 0.948639766666667

00:13:29.150 --> 00:13:31.198 So we have Warren and I have been

NOTE Confidence: 0.948639766666667

00:13:31.198 --> 00:13:32.888 using this technology called eye

NOTE Confidence: 0.948639766666667

00:13:32.888 --> 00:13:34.743 tracking for quite some time.

NOTE Confidence: 0.948639766666667

00:13:34.750 --> 00:13:37.333 But the concept that we try to measure is

NOTE Confidence: 0.948639766666667

00:13:37.333 --> 00:13:39.990 the concept of social visual engagement,

NOTE Confidence: 0.948639766666667

00:13:39.990 --> 00:13:42.741 which is basically the way we look

NOTE Confidence: 0.948639766666667

00:13:42.741 --> 00:13:45.348 at and learn about the world.

NOTE Confidence: 0.948639766666667

00:13:45.350 --> 00:13:47.560 So imagine social visual engagement

NOTE Confidence: 0.948639766666667

00:13:47.560 --> 00:13:49.328 in babies will be.

NOTE Confidence: 0.948639766666667

00:13:49.330 --> 00:13:52.130 What they are looking at and learning

NOTE Confidence: 0.948639766666667

00:13:52.130 --> 00:13:55.650 about in their immediate social environment,

NOTE Confidence: 0.948639766666667

00:13:55.650 --> 00:13:57.366 and here is just an example.

NOTE Confidence: 0.948639766666667

00:13:57.370 --> 00:13:59.446 So you see that cross there.

NOTE Confidence: 0.948639766666667

00:13:59.450 --> 00:14:01.940 That cross is basically a toddler

NOTE Confidence: 0.948639766666667

00:14:01.940 --> 00:14:04.466 looking at this two toddlers

NOTE Confidence: 0.948639766666667

00:14:04.466 --> 00:14:08.406 interacting K and you can then measure

NOTE Confidence: 0.948639766666667

00:14:08.410 --> 00:14:11.903 120 times a second moment by moment

NOTE Confidence: 0.948639766666667

00:14:11.903 --> 00:14:14.848 how that toddler is hi waiting,

NOTE Confidence: 0.948639766666667

00:14:14.850 --> 00:14:16.890 the perception of that experience that

NOTE Confidence: 0.948639766666667

00:14:16.890 --> 00:14:19.110 is happening right in front of them.

NOTE Confidence: 0.948639766666667

00:14:19.110 --> 00:14:20.790 So it's a Co creation.

NOTE Confidence: 0.948639766666667

00:14:20.790 --> 00:14:23.075 That's why we talk about

NOTE Confidence: 0.948639766666667

00:14:23.075 --> 00:14:23.989 transactional biomarkers,

NOTE Confidence: 0.948639766666667

00:14:23.990 --> 00:14:25.350 because what's being created

NOTE Confidence: 0.948639766666667

00:14:25.350 --> 00:14:27.790 is not only on the baby side,

NOTE Confidence: 0.948639766666667

00:14:27.790 --> 00:14:29.788 it's not only on the other,

NOTE Confidence: 0.948639766666667

00:14:29.790 --> 00:14:32.445 it's actually the mutually reinforcing

NOTE Confidence: 0.948639766666667

00:14:32.445 --> 00:14:35.610 choreography between the two is that

NOTE Confidence: 0.948639766666667

00:14:35.610 --> 00:14:37.686 baby creates an experience that is

NOTE Confidence: 0.948639766666667

00:14:37.686 --> 00:14:39.510 what's happening in front of them,

00:14:39.510 --> 00:14:41.678 a transactional biomarker, OK.

00:14:41.678 --> 00:14:42.220 So,

00:14:42.220 --> 00:14:45.139 but one of the big sort of technical

00:14:45.139 --> 00:14:47.106 problems that we've sort of

00:14:47.106 --> 00:14:48.924 encountered is how do you quantify

00:14:48.924 --> 00:14:50.395 social visual engagement particularly

00:14:50.395 --> 00:14:52.015 for groups of people.

00:14:52.020 --> 00:14:53.538 And so we started this way,

00:14:53.540 --> 00:14:56.780 this is what we want and see if it

00:14:59.140 --> 00:15:01.116 so this is the battleground

00:15:01.116 --> 00:15:03.336 of brain development in tops.

00:15:12.500 --> 00:15:18.538 I die for your thoughts. Here we go.

00:15:18.540 --> 00:15:22.238 This is how children learn about paying

00:15:22.238 --> 00:15:24.452 attention to people's faces and facial

00:15:24.452 --> 00:15:26.300 expressions and nonverbal gestures.

00:15:26.300 --> 00:15:28.838 And and and communication and and

NOTE Confidence: 0.9100634

00:15:28.838 --> 00:15:31.071 and and maybe calling somebody

NOTE Confidence: 0.9100634

00:15:31.071 --> 00:15:33.376 else in conflict with such.

NOTE Confidence: 0.9100634

00:15:33.380 --> 00:15:34.220 I mean, you name it,

NOTE Confidence: 0.9100634

00:15:34.220 --> 00:15:35.977 This is what we want to know.

NOTE Confidence: 0.9100634

00:15:35.980 --> 00:15:38.670 How does a child create?

NOTE Confidence: 0.9100634

00:15:38.670 --> 00:15:40.296 An experience out of the simulator

NOTE Confidence: 0.9100634

00:15:40.296 --> 00:15:42.309 that I just put in front of you.

NOTE Confidence: 0.9100634

00:15:42.310 --> 00:15:43.828 So this is what we did.

NOTE Confidence: 0.9100634

00:15:43.830 --> 00:15:44.910 This is a frame of video,

NOTE Confidence: 0.9100634

00:15:44.910 --> 00:15:47.030 the 30 frames per second.

NOTE Confidence: 0.9100634

00:15:47.030 --> 00:15:49.870 And then we basically measure a say a

NOTE Confidence: 0.9100634

00:15:49.870 --> 00:15:52.936 2 year old one child looking at that

NOTE Confidence: 0.9100634

00:15:52.936 --> 00:15:56.148 frame of video at that moment in time.

NOTE Confidence: 0.9100634

00:15:56.150 --> 00:15:58.254 And what you see there is an equation

NOTE Confidence: 0.9100634

00:15:58.254 --> 00:16:00.357 and that equations basically shows the

26

NOTE Confidence: 0.9100634

00:16:00.357 --> 00:16:02.625 amount of visual resources that that

NOTE Confidence: 0.9100634

00:16:02.688 --> 00:16:04.476 toddler is dedicating to that point

NOTE Confidence: 0.9100634

00:16:04.476 --> 00:16:07.166 of the screen at that moment in time.

NOTE Confidence: 0.9100634

00:16:07.166 --> 00:16:09.960 And that equation comes from the mapping

NOTE Confidence: 0.9100634

00:16:09.960 --> 00:16:13.425 of photoreceptive cells in in primate eye.

NOTE Confidence: 0.9100634

00:16:13.425 --> 00:16:16.964 OK, Now if you have 45 two year olds

NOTE Confidence: 0.9100634

00:16:16.964 --> 00:16:19.015 looking at that frame at that moment in

NOTE Confidence: 0.9100634

00:16:19.015 --> 00:16:21.199 time and they're looking at the same spot,

NOTE Confidence: 0.9100634

00:16:21.200 --> 00:16:23.020 what you see is that the colors

NOTE Confidence: 0.9100634

00:16:23.020 --> 00:16:24.145 are getting hotter, OK,

NOTE Confidence: 0.9100634

00:16:24.145 --> 00:16:26.905 And that means that there is a convergence

NOTE Confidence: 0.9100634

00:16:26.905 --> 00:16:29.464 of attention across all these children.

NOTE Confidence: 0.9100634

00:16:29.464 --> 00:16:29.840 Remember,

NOTE Confidence: 0.9100634

00:16:29.840 --> 00:16:31.317 there is a frame of video there.

NOTE Confidence: 0.9100634

00:16:31.320 --> 00:16:33.150 Now let's take a different

NOTE Confidence: 0.9100634

00:16:33.150 --> 00:16:34.248 kind of perspective.

NOTE Confidence: 0.9100634

00:16:34.250 --> 00:16:36.968 Let's take the bird's eye view of that frame,

NOTE Confidence: 0.9100634

00:16:36.970 --> 00:16:39.350 and what you see in front of you now is

NOTE Confidence: 0.9100634

00:16:39.418 --> 00:16:42.050 something that we've called a salience map.

NOTE Confidence: 0.9100634

00:16:42.050 --> 00:16:44.210 And what you see is that the hot color,

NOTE Confidence: 0.9100634

00:16:44.210 --> 00:16:45.332 like the Reds,

NOTE Confidence: 0.9100634

00:16:45.332 --> 00:16:47.576 means that more children are converging

NOTE Confidence: 0.9100634

00:16:47.576 --> 00:16:49.798 attention on and the Blues you don't

NOTE Confidence: 0.9100634

00:16:49.798 --> 00:16:51.810 see many children paying attention to.

NOTE Confidence: 0.9100634

00:16:51.810 --> 00:16:54.933 And now what you can do is to basically

NOTE Confidence: 0.9100634

00:16:54.933 --> 00:16:58.110 watch the same video that I showed you

NOTE Confidence: 0.9100634

00:16:58.110 --> 00:17:01.297 before through the eyes of 45 two year olds.

NOTE Confidence: 0.9100634

00:17:01.300 --> 00:17:02.692 And you see that this is

NOTE Confidence: 0.9100634

00:17:02.692 --> 00:17:03.620 changing all the time.

NOTE Confidence: 0.9100634

00:17:03.620 --> 00:17:05.940 Sometimes it is is dispersed,

NOTE Confidence: 0.9100634

00:17:05.940 --> 00:17:07.108 but sometimes something really

28

NOTE Confidence: 0.9100634

00:17:07.108 --> 00:17:08.860 important happens in middle of the

NOTE Confidence: 0.9100634

00:17:08.905 --> 00:17:10.481 screen or in the side of the screen

NOTE Confidence: 0.9100634

00:17:10.481 --> 00:17:12.139 and they all going to focus on that.

NOTE Confidence: 0.9100634

00:17:12.140 --> 00:17:14.692 And we were sort of fascinated by the

NOTE Confidence: 0.9100634

00:17:14.692 --> 00:17:17.744 fact that when we're doing this work

NOTE Confidence: 0.9100634

00:17:17.744 --> 00:17:19.616 with typically developing toddlers,

NOTE Confidence: 0.9100634

00:17:19.620 --> 00:17:21.330 they would watch our videos and

NOTE Confidence: 0.9100634

00:17:21.330 --> 00:17:22.964 80% of the time they'll be looking

NOTE Confidence: 0.9100634

00:17:22.964 --> 00:17:24.717 at the same spot at the same time.

NOTE Confidence: 0.9100634

00:17:24.720 --> 00:17:28.825 And so these are what a wonderful child

NOTE Confidence: 0.9100634

00:17:28.825 --> 00:17:30.800 psychologist from Seattle One said.

NOTE Confidence: 0.9100634

00:17:30.800 --> 00:17:33.920 This is a hotspot of socialization.

NOTE Confidence: 0.9100634

00:17:33.920 --> 00:17:36.111 So Andy Meltzer decided to name it

NOTE Confidence: 0.9100634

00:17:36.111 --> 00:17:38.346 this way because this is a momentary

NOTE Confidence: 0.9100634

00:17:38.346 --> 00:17:40.605 thing that happens in front of the

NOTE Confidence: 0.9100634

00:17:40.605 --> 00:17:42.705 child that all children will focus

NOTE Confidence: 0.9100634

00:17:42.705 --> 00:17:45.004 on because they're all entrained

NOTE Confidence: 0.9100634

00:17:45.004 --> 00:17:48.114 to that hotspot of socialization,

NOTE Confidence: 0.9100634

00:17:48.120 --> 00:17:50.280 something they need to learn.

NOTE Confidence: 0.9100634

00:17:50.280 --> 00:17:53.436 In order to understand social interactions,

NOTE Confidence: 0.9100634

00:17:53.440 --> 00:17:55.240 OK, let's take a different perspective.

NOTE Confidence: 0.9100634

00:17:55.240 --> 00:17:57.916 Now let's bring in another axis.

NOTE Confidence: 0.9100634

00:17:57.920 --> 00:18:00.836 And this axis here is the axis of time.

NOTE Confidence: 0.9100634

00:18:00.840 --> 00:18:03.198 And what do you see are lots of frames,

NOTE Confidence: 0.9100634

00:18:03.200 --> 00:18:04.560 the frames of the videos.

NOTE Confidence: 0.9100634

00:18:04.560 --> 00:18:06.966 Now let's take that salience map

NOTE Confidence: 0.9100634

00:18:06.966 --> 00:18:08.570 and let's carve it

NOTE Confidence: 0.922682092307692

00:18:08.656 --> 00:18:11.565 all the time. OK, And So what you

NOTE Confidence: 0.922682092307692

00:18:11.565 --> 00:18:14.004 have now is a space-time distribution,

NOTE Confidence: 0.922682092307692

00:18:14.004 --> 00:18:17.724 and when he gets red, when he gets hot.

NOTE Confidence: 0.922682092307692

00:18:17.724 --> 00:18:20.387 It means that this is something that

NOTE Confidence: 0.922682092307692

00:18:20.387 --> 00:18:22.777 we've called an attentional funnel.

NOTE Confidence: 0.922682092307692

00:18:22.780 --> 00:18:24.465 Basically children are looking at

NOTE Confidence: 0.922682092307692

00:18:24.465 --> 00:18:26.790 different spots and that all of a

NOTE Confidence: 0.922682092307692

00:18:26.790 --> 00:18:27.962 sudden something important happens

NOTE Confidence: 0.922682092307692

00:18:27.962 --> 00:18:30.136 and there is a funneling of the

NOTE Confidence: 0.922682092307692

00:18:30.136 --> 00:18:32.020 attention of all of these children.

NOTE Confidence: 0.922682092307692

00:18:32.020 --> 00:18:35.095 And now what you can do is to watch this

NOTE Confidence: 0.922682092307692

00:18:35.095 --> 00:18:37.615 video that I showed you through the funnel.

NOTE Confidence: 0.922682092307692

00:18:37.620 --> 00:18:42.135 It basically that funnel right here is,

NOTE Confidence: 0.922682092307692

00:18:42.140 --> 00:18:44.028 is is basically encircling.

NOTE Confidence: 0.922682092307692

00:18:44.028 --> 00:18:46.860 What is really important for these

NOTE Confidence: 0.922682092307692

00:18:46.940 --> 00:18:49.796 children as they are going through

NOTE Confidence: 0.922682092307692

00:18:49.796 --> 00:18:53.058 that particular video now let me

NOTE Confidence: 0.922682092307692

00:18:53.058 --> 00:18:57.414 just show you here as you see.

NOTE Confidence: 0.922682092307692

00:18:57.414 --> 00:18:59.930 Right here, they're not looking at

NOTE Confidence: 0.922682092307692

00:18:59.930 --> 00:19:01.730 the faces of those two toddlers.

NOTE Confidence: 0.922682092307692

00:19:01.730 --> 00:19:03.956 They are looking at something that

NOTE Confidence: 0.922682092307692

00:19:03.956 --> 00:19:06.330 is in between those two children.

NOTE Confidence: 0.922682092307692

00:19:06.330 --> 00:19:07.926 And that's the object that they

NOTE Confidence: 0.922682092307692

00:19:07.926 --> 00:19:08.724 are fighting over.

NOTE Confidence: 0.922682092307692

00:19:08.730 --> 00:19:10.676 Because all of those two year olds

NOTE Confidence: 0.922682092307692

00:19:10.676 --> 00:19:12.872 were able to grab the gay skew that

NOTE Confidence: 0.922682092307692

00:19:12.872 --> 00:19:14.770 comes from one of the toddlers,

NOTE Confidence: 0.922682092307692

00:19:14.770 --> 00:19:17.766 and they are focusing on the object

NOTE Confidence: 0.922682092307692

00:19:17.766 --> 00:19:19.050 of shared attention.

NOTE Confidence: 0.922682092307692

00:19:19.050 --> 00:19:21.970 And this is happening in

NOTE Confidence: 0.922682092307692

00:19:21.970 --> 00:19:22.804 intensive milliseconds.

NOTE Confidence: 0.922682092307692

00:19:22.804 --> 00:19:25.723 OK, so keep that in mind now.

NOTE Confidence: 0.922682092307692

00:19:25.730 --> 00:19:27.311 This is now.

NOTE Confidence: 0.922682092307692

00:19:27.311 --> 00:19:30.666 What we call a normative funnel of

NOTE Confidence: 0.922682092307692

00:19:30.666 --> 00:19:32.814 attention as all of these typically

NOTE Confidence: 0.922682092307692

00:19:32.814 --> 00:19:35.029 developing 2 year olds are traversing

NOTE Confidence: 0.922682092307692

00:19:35.029 --> 00:19:37.022 that particular frame of video.

NOTE Confidence: 0.922682092307692

00:19:37.022 --> 00:19:37.430 OK,

NOTE Confidence: 0.922682092307692

00:19:37.430 --> 00:19:41.560 and so now what you see are skin paths of

NOTE Confidence: 0.922682092307692

00:19:41.669 --> 00:19:45.325 two year olds of autism traversing the same.

NOTE Confidence: 0.922682092307692

00:19:45.325 --> 00:19:46.660 The same frame,

NOTE Confidence: 0.922682092307692

00:19:46.660 --> 00:19:48.868 and this is what the typically

NOTE Confidence: 0.922682092307692

00:19:48.868 --> 00:19:50.580 developing children are focusing on.

NOTE Confidence: 0.922682092307692

00:19:50.580 --> 00:19:52.452 And this is what the children

NOTE Confidence: 0.922682092307692

00:19:52.452 --> 00:19:53.940 with autism are focusing on.

NOTE Confidence: 0.922682092307692

00:19:53.940 --> 00:19:57.460 So they are exposed to exactly the same,

NOTE Confidence: 0.922682092307692

00:19:57.460 --> 00:19:59.104 the same stimuli, OK,

NOTE Confidence: 0.922682092307692

00:19:59.104 --> 00:20:00.337 those toddlers playing,

NOTE Confidence: 0.922682092307692

00:20:00.340 --> 00:20:01.620 but they Needless to say,

NOTE Confidence: 0.922682092307692

00:20:01.620 --> 00:20:04.400 they are reconstructing internally

NOTE Confidence: 0.922682092307692

00:20:04.400 --> 00:20:07.180 a very different experience.

NOTE Confidence: 0.922682092307692

00:20:07.180 --> 00:20:10.268 And what we found out is that those

NOTE Confidence: 0.922682092307692

00:20:10.268 --> 00:20:12.395 things happen hundreds and hundreds

NOTE Confidence: 0.922682092307692

00:20:12.395 --> 00:20:15.370 of time within 5 minutes of free

NOTE Confidence: 0.922682092307692

00:20:15.455 --> 00:20:17.735 viewing of a video like that.

NOTE Confidence: 0.922682092307692

00:20:17.740 --> 00:20:19.570 To the extent that we could

NOTE Confidence: 0.922682092307692

00:20:19.570 --> 00:20:21.180 measure that our our kids,

NOTE Confidence: 0.922682092307692

00:20:21.180 --> 00:20:22.156 the ones with autism,

NOTE Confidence: 0.922682092307692

00:20:22.156 --> 00:20:23.620 the two year olds of autism,

NOTE Confidence: 0.922682092307692

00:20:23.620 --> 00:20:27.435 were diverging over 570 times from

NOTE Confidence: 0.922682092307692

00:20:27.435 --> 00:20:29.860 the experience of their peers.

NOTE Confidence: 0.922682092307692

00:20:29.860 --> 00:20:31.974 Now this was happening in 5 minutes.

NOTE Confidence: 0.922682092307692

00:20:31.980 --> 00:20:33.680 They are not only diverging

NOTE Confidence: 0.922682092307692

00:20:33.680 --> 00:20:34.700 during our experiments,

NOTE Confidence: 0.922682092307692

00:20:34.700 --> 00:20:37.328 they are diverging in their lives.

NOTE Confidence: 0.922682092307692

00:20:37.330 --> 00:20:38.810 And so if you extrapolate,

00:20:38.810 --> 00:20:41.810 imagine thousands of missed

00:20:41.810 --> 00:20:44.810 opportunities of social learning,

00:20:44.810 --> 00:20:46.570 OK, in a few hours,

00:20:46.570 --> 00:20:47.910 and really millions in the

00:20:47.910 --> 00:20:49.250 first two years of life.

00:20:49.250 --> 00:20:51.924 So this is our conception of autism.

00:20:51.930 --> 00:20:54.474 If you miss thousands and thousands

00:20:54.474 --> 00:20:56.170 and thousands of opportunities

00:20:56.243 --> 00:20:57.530 for social learning,

00:20:57.530 --> 00:21:00.210 you will become socially disabled.

00:21:00.210 --> 00:21:06.650 OK, now remember that.

00:21:06.650 --> 00:21:09.914 These are the experiences that the

00:21:09.914 --> 00:21:13.178 children may be having on in their lives.

00:21:13.178 --> 00:21:15.571 And if we go by Joe Le Doux's

00:21:15.571 --> 00:21:17.965 sort of subtitle of a great book,

00:21:17.970 --> 00:21:20.287 that our brains become who we are,

NOTE Confidence: 0.922682092307692

00:21:20.290 --> 00:21:23.195 those early experiences are basically

NOTE Confidence: 0.922682092307692

00:21:23.195 --> 00:21:27.010 becoming the brains of the children.

NOTE Confidence: 0.922682092307692

00:21:27.010 --> 00:21:29.537 That's the reason I meant that the

NOTE Confidence: 0.922682092307692

00:21:29.537 --> 00:21:31.829 brain becomes a physical instantiation

NOTE Confidence: 0.922682092307692

00:21:31.829 --> 00:21:34.664 fact of those early experiences.

NOTE Confidence: 0.922682092307692

00:21:34.670 --> 00:21:36.720 Now this biomarker social visual

NOTE Confidence: 0.922682092307692

00:21:36.720 --> 00:21:38.770 engagement has become very important

NOTE Confidence: 0.95283285

00:21:38.833 --> 00:21:40.894 to us. We needed to show first of all that

NOTE Confidence: 0.95283285

00:21:40.894 --> 00:21:43.108 he was a biomarker and what we found out.

NOTE Confidence: 0.95283285

00:21:43.110 --> 00:21:45.784 This is work with our good friend

NOTE Confidence: 0.95283285

00:21:45.784 --> 00:21:47.622 John Constantino and just.

NOTE Confidence: 0.95283285

00:21:47.622 --> 00:21:51.185 So we did studies with twins, OK?

NOTE Confidence: 0.95283285

00:21:51.185 --> 00:21:53.600 And what we found out is that

NOTE Confidence: 0.95283285

00:21:53.600 --> 00:21:56.237 something as ephemeral as eye looking.

NOTE Confidence: 0.95283285

00:21:56.240 --> 00:21:59.840 You know, eyes are very important

NOTE Confidence: 0.95283285

00:21:59.840 --> 00:22:01.440 false mechanism of socialization.

NOTE Confidence: 0.95283285

00:22:01.440 --> 00:22:05.199 The eyes are not only the window to the soul,

NOTE Confidence: 0.95283285

00:22:05.200 --> 00:22:08.680 they're the window to to the social brain.

NOTE Confidence: 0.95283285

00:22:08.680 --> 00:22:11.278 So much so that the more,

NOTE Confidence: 0.95283285

00:22:11.280 --> 00:22:15.040 say an animal needs caregiving,

NOTE Confidence: 0.95283285

00:22:15.040 --> 00:22:18.078 the greater the contrast of the sclera.

NOTE Confidence: 0.95283285

00:22:18.080 --> 00:22:20.240 So, for example, primates have sclera,

NOTE Confidence: 0.95283285

00:22:20.240 --> 00:22:21.720 humans have most of all,

NOTE Confidence: 0.95283285

00:22:21.720 --> 00:22:24.000 but a rodent like a chinchilla does not.

NOTE Confidence: 0.95283285

00:22:24.000 --> 00:22:25.625 That's not the way that

NOTE Confidence: 0.95283285

00:22:25.625 --> 00:22:26.988 caregiving happens with rodents.

NOTE Confidence: 0.95283285

00:22:26.988 --> 00:22:28.758 So eyes are very important.

NOTE Confidence: 0.95283285

00:22:28.760 --> 00:22:31.160 So just thinking in terms of eye looking,

NOTE Confidence: 0.95283285

00:22:31.160 --> 00:22:34.464 when we had twins that were basically

NOTE Confidence: 0.95283285

00:22:34.464 --> 00:22:37.458 watching videotapes in two separate rooms.

NOTE Confidence: 0.95283285

00:22:37.460 --> 00:22:39.050 OK, identical twins,

NOTE Confidence: 0.95283285

00:22:39.050 --> 00:22:41.700 MZ twins and fraternal twins,

NOTE Confidence: 0.95283285

00:22:41.700 --> 00:22:42.360 DZ twins.

NOTE Confidence: 0.95283285

00:22:42.360 --> 00:22:45.000 What we found out is that social visual

NOTE Confidence: 0.95283285

00:22:45.076 --> 00:22:47.301 engagement is very strongly influenced

NOTE Confidence: 0.95283285

00:22:47.301 --> 00:22:50.005 by genetic variation with a heritability

NOTE Confidence: 0.95283285

00:22:50.005 --> 00:22:53.866 of over 90% in fact .91 in this study.

NOTE Confidence: 0.95283285

00:22:53.870 --> 00:22:56.245 And so the concordance rates

NOTE Confidence: 0.95283285

00:22:56.245 --> 00:22:58.595 for identical twins was .91,

NOTE Confidence: 0.95283285

00:22:58.595 --> 00:23:01.728 for fraternal twins it was only .35,

NOTE Confidence: 0.95283285

00:23:01.728 --> 00:23:04.934 and for just the age and sex

NOTE Confidence: 0.95283285

00:23:04.934 --> 00:23:06.960 match was only .15,

NOTE Confidence: 0.95283285

00:23:06.960 --> 00:23:09.810 so under strong genetic influence.

NOTE Confidence: 0.95283285

00:23:09.810 --> 00:23:10.776 And interestingly,

NOTE Confidence: 0.95283285

00:23:10.776 --> 00:23:14.157 those highly heritable assays were also the

NOTE Confidence: 0.95283285

00:23:14.157 --> 00:23:17.090 assays that were separating the children,

38

NOTE Confidence: 0.95283285

00:23:17.090 --> 00:23:18.394 the tablets of autism,

NOTE Confidence: 0.95283285

00:23:18.394 --> 00:23:19.046 you know,

NOTE Confidence: 0.95283285

00:23:19.050 --> 00:23:21.275 the most efficiently from their

NOTE Confidence: 0.95283285

00:23:21.275 --> 00:23:23.055 typically developing peers in

NOTE Confidence: 0.95283285

00:23:23.055 --> 00:23:25.544 one cohort and in another cohort

NOTE Confidence: 0.95283285

00:23:25.544 --> 00:23:27.722 in a replication cohort now.

NOTE Confidence: 0.95283285

00:23:27.722 --> 00:23:31.866 What to us was remarkable is that

NOTE Confidence: 0.95283285

00:23:31.866 --> 00:23:33.924 that genetic control of social

NOTE Confidence: 0.95283285

00:23:33.924 --> 00:23:36.120 visual engagement was not only on

NOTE Confidence: 0.95283285

00:23:36.185 --> 00:23:38.420 measures that were summary measures,

NOTE Confidence: 0.95283285

00:23:38.420 --> 00:23:40.260 like I looking over a period of time

NOTE Confidence: 0.95283285

00:23:40.260 --> 00:23:42.700 that a child was actually watching a video.

NOTE Confidence: 0.95283285

00:23:42.700 --> 00:23:46.052 It was moment by moment to the extent

NOTE Confidence: 0.95283285

00:23:46.052 --> 00:23:48.259 that identical identical twins,

NOTE Confidence: 0.95283285

00:23:48.260 --> 00:23:50.306 they were more likely than fraternal

NOTE Confidence: 0.95283285

00:23:50.306 --> 00:23:52.030 twins to shift their eyes.

00:23:52.030 --> 00:23:53.270 At the same moment,

00:23:53.270 --> 00:23:54.510 in the same direction,

00:23:54.510 --> 00:23:57.060 onto the same semantic targets and

00:23:57.060 --> 00:23:59.830 microscales of 10s of milliseconds.

00:23:59.830 --> 00:24:02.350 So we are really talking about two

00:24:02.350 --> 00:24:03.430 synapses from retina.

00:24:03.430 --> 00:24:05.894 So this is the extent to which

00:24:05.894 --> 00:24:07.670 God or nature decided,

00:24:07.670 --> 00:24:09.866 going along with Kyle and Donald,

00:24:09.870 --> 00:24:12.639 that we are born social beings,

00:24:12.639 --> 00:24:15.782 we are the product of our relationships

00:24:15.782 --> 00:24:18.488 and nothing has shaped really nothing

00:24:18.488 --> 00:24:21.550 has shaped the primate brain as much.

00:24:21.550 --> 00:24:22.716 As sociality.

00:24:22.716 --> 00:24:28.110 OK, so this is now what Warren did here.

NOTE Confidence: 0.95283285

00:24:28.110 --> 00:24:29.850 Even though the twins watched those

NOTE Confidence: 0.95283285

00:24:29.850 --> 00:24:31.870 videos in different in different rooms,

NOTE Confidence: 0.95283285

00:24:31.870 --> 00:24:34.095 Warren brought together their eye

NOTE Confidence: 0.95283285

00:24:34.095 --> 00:24:36.320 tracking signal which is this

NOTE Confidence: 0.95283285

00:24:36.394 --> 00:24:38.866 crosshair from 2 videos onto the same.

NOTE Confidence: 0.95283285

00:24:38.870 --> 00:24:41.774 So this is now fraternal twins

NOTE Confidence: 0.95283285

00:24:41.774 --> 00:24:43.226 watching this video.

NOTE Confidence: 0.95283285

00:24:43.230 --> 00:24:45.350 You can see the concordance.

NOTE Confidence: 0.95283285

00:24:45.350 --> 00:24:47.250 Remember they are watching this

NOTE Confidence: 0.95283285

00:24:47.250 --> 00:24:48.350 video in different rooms

NOTE Confidence: 0.938306866666667

00:24:50.430 --> 00:24:52.518 and now. These are identical twins

NOTE Confidence: 0.938306866666667

00:24:52.518 --> 00:24:54.949 watching this video in different rooms.

NOTE Confidence: 0.93622824

00:25:01.000 --> 00:25:05.120 So an agreement of .91.

NOTE Confidence: 0.93622824

00:25:05.120 --> 00:25:09.999 Well, how early does that assay begin

NOTE Confidence: 0.93622824

00:25:09.999 --> 00:25:13.200 to segregate children of autism from

NOTE Confidence: 0.93622824

00:25:13.200 --> 00:25:15.000 their typically developing peers?

NOTE Confidence: 0.93622824

00:25:15.000 --> 00:25:18.078 This is now in slow motion,

NOTE Confidence: 0.93622824

00:25:18.080 --> 00:25:20.340 a typically developing 5 months

NOTE Confidence: 0.93622824

00:25:20.340 --> 00:25:22.600 old looking at the caregiver

NOTE Confidence: 0.93622824

00:25:22.600 --> 00:25:25.468 falling in love with her eyes.

NOTE Confidence: 0.93622824

00:25:25.470 --> 00:25:28.326 And this is a 5 month old who

NOTE Confidence: 0.93622824

00:25:28.326 --> 00:25:31.148 was later diagnosed with autism.

NOTE Confidence: 0.93622824

00:25:31.150 --> 00:25:34.174 A very different way of looking

NOTE Confidence: 0.93622824

00:25:34.174 --> 00:25:39.259 at that speaking face, now over 3.

NOTE Confidence: 0.93622824

00:25:39.260 --> 00:25:41.766 Cohorts, we follow children from the age

NOTE Confidence: 0.93622824

00:25:41.766 --> 00:25:44.498 of two months to the age of 24 months.

NOTE Confidence: 0.93622824

00:25:44.500 --> 00:25:46.650 Densely sample collecting eye tracking

NOTE Confidence: 0.93622824

00:25:46.650 --> 00:25:49.298 data monthly until six months and

NOTE Confidence: 0.93622824

00:25:49.298 --> 00:25:51.018 every three months thereafter.

NOTE Confidence: 0.93622824

00:25:51.020 --> 00:25:53.452 And what we are able to see is

NOTE Confidence: 0.93622824

00:25:53.452 --> 00:25:55.925 that this in blue here is the

NOTE Confidence: 0.93622824

00:25:55.925 --> 00:25:58.439 growth chart of eye looking for

NOTE Confidence: 0.93622824

00:25:58.439 --> 00:26:00.377 typically developing children.

NOTE Confidence: 0.93622824

00:26:00.380 --> 00:26:02.841 You see it goes up, down and up,

NOTE Confidence: 0.93622824

00:26:02.841 --> 00:26:04.803 up, OK and this goes from

NOTE Confidence: 0.93622824

00:26:04.803 --> 00:26:06.767 two months to 24 months.

NOTE Confidence: 0.93622824

00:26:06.770 --> 00:26:09.140 For the children who are later

NOTE Confidence: 0.93622824

00:26:09.140 --> 00:26:11.490 diagnosed with autism over 3 cohorts,

NOTE Confidence: 0.93622824

00:26:11.490 --> 00:26:13.709 they start over here and it's free

NOTE Confidence: 0.93622824

00:26:13.709 --> 00:26:15.810 fall for the first two years.

NOTE Confidence: 0.93622824

00:26:15.810 --> 00:26:17.790 So this is autism unfolding

NOTE Confidence: 0.93622824

00:26:17.790 --> 00:26:20.250 right in front of your eyes.

NOTE Confidence: 0.93622824

00:26:20.250 --> 00:26:22.362 We have differences in the first

NOTE Confidence: 0.93622824

00:26:22.362 --> 00:26:24.790 six months that are predictive of

NOTE Confidence: 0.93622824

00:26:24.790 --> 00:26:26.686 diagnostic classification as well

NOTE Confidence: 0.93622824

00:26:26.686 --> 00:26:29.586 as level of disability at the ages

NOTE Confidence: 0.93622824

00:26:29.586 --> 00:26:31.763 of 24 and 36 months experiences in

NOTE Confidence: 0.93622824

00:26:31.770 --> 00:26:34.060 the first six months of life. OK.

NOTE Confidence: 0.93622824

00:26:34.060 --> 00:26:36.040 Another thing that we found out,

NOTE Confidence: 0.93622824

00:26:36.040 --> 00:26:37.916 everything that we do with human infants,

NOTE Confidence: 0.93622824

00:26:37.920 --> 00:26:40.020 we do with infant monkeys because

NOTE Confidence: 0.93622824

00:26:40.020 --> 00:26:41.870 they are an extraordinary platform

NOTE Confidence: 0.93622824

00:26:41.870 --> 00:26:43.800 for studying the social brain.

NOTE Confidence: 0.93622824

00:26:43.800 --> 00:26:45.450 So with colleagues at the Emory

NOTE Confidence: 0.93622824

00:26:45.450 --> 00:26:46.000 Primate Center,

NOTE Confidence: 0.93622824

00:26:46.000 --> 00:26:48.238 John Celine by Chevalier and Marsanches,

NOTE Confidence: 0.93622824

00:26:48.240 --> 00:26:50.838 what you see here is basically

NOTE Confidence: 0.93622824

00:26:50.840 --> 00:26:53.186 I'm looking in both human infants

NOTE Confidence: 0.93622824

00:26:53.186 --> 00:26:55.440 from 2 to 24 months,

NOTE Confidence: 0.93622824

00:26:55.440 --> 00:26:58.478 and here you seen black infant monkeys.

NOTE Confidence: 0.93622824

00:26:58.480 --> 00:27:00.440 And you need to do a transformation.

NOTE Confidence: 0.93622824

00:27:00.440 --> 00:27:02.720 You need to divide by 4 because monkeys

NOTE Confidence: 0.93622824

00:27:02.720 --> 00:27:04.686 mature much more quickly, of course.

NOTE Confidence: 0.93622824

00:27:04.686 --> 00:27:06.504 But you see that the pattern

NOTE Confidence: 0.93622824

00:27:06.504 --> 00:27:08.840 of I looking is very similar.

NOTE Confidence: 0.93622824

00:27:08.840 --> 00:27:10.838 It serves the same adaptive value.

NOTE Confidence: 0.93622824

00:27:10.840 --> 00:27:14.240 This assay is highly phylogenetically

NOTE Confidence: 0.93622824

00:27:14.240 --> 00:27:14.920 conserved.

NOTE Confidence: 0.93622824

00:27:14.920 --> 00:27:16.984 So that's the reason why we're

NOTE Confidence: 0.93622824

00:27:16.984 --> 00:27:18.360 excited about this biomarker.

NOTE Confidence: 0.93622824

00:27:18.360 --> 00:27:20.600 But could we use it?

NOTE Confidence: 0.93622824

00:27:20.600 --> 00:27:22.750 To provide greater access to

NOTE Confidence: 0.93622824

00:27:22.750 --> 00:27:24.040 early diagnostic services.

NOTE Confidence: 0.93622824

00:27:24.040 --> 00:27:25.396 So this is what we did.

NOTE Confidence: 0.93622824

00:27:25.400 --> 00:27:27.560 We took some of this lab and gosh,

NOTE Confidence: 0.93622824

00:27:27.560 --> 00:27:29.960 I might remember this lab well.

NOTE Confidence: 0.93622824

00:27:29.960 --> 00:27:31.145 And then we started building

NOTE Confidence: 0.93622824

00:27:31.145 --> 00:27:32.330 a prototype of something that

NOTE Confidence: 0.93622824

00:27:32.372 --> 00:27:33.677 would be more portable somebody,

NOTE Confidence: 0.93622824

00:27:33.680 --> 00:27:34.904 something that could actually

NOTE Confidence: 0.93622824

00:27:34.904 --> 00:27:36.434 be deployed in the community.

NOTE Confidence: 0.93622824

00:27:36.440 --> 00:27:38.750 And we ended up with with this

NOTE Confidence: 0.93622824

00:27:38.750 --> 00:27:40.767 prototype and here is what it

NOTE Confidence: 0.93622824

00:27:40.767 --> 00:27:42.039 looks like these days.

NOTE Confidence: 0.87144408

00:27:46.940 --> 00:27:48.340 It's just like the car,

NOTE Confidence: 0.87144408

00:27:48.340 --> 00:27:49.620 it's just like the cars

NOTE Confidence: 0.80715597

00:27:51.740 --> 00:27:52.499 hanging in here,

NOTE Confidence: 0.911177349090909

00:27:56.620 --> 00:27:58.284 so it's entirely automated.

NOTE Confidence: 0.911177349090909

00:27:58.284 --> 00:28:01.020 The whole idea is to make it

NOTE Confidence: 0.911177349090909

00:28:01.020 --> 00:28:04.260 as efficient as possible so a

NOTE Confidence: 0.911177349090909

00:28:04.260 --> 00:28:06.420 minimally trained technician can

NOTE Confidence: 0.911177349090909

00:28:06.511 --> 00:28:09.299 actually perform this procedure.

NOTE Confidence: 0.911177349090909

00:28:09.300 --> 00:28:12.453 So this is what the the technician does

NOTE Confidence: 0.911177349090909

00:28:12.453 --> 00:28:15.340 while the child is inside watching.

NOTE Confidence: 0.944827872727273

00:28:17.850 --> 00:28:19.382 This calibration is automated,

NOTE Confidence: 0.944827872727273

00:28:19.382 --> 00:28:22.370 but this is what the child sees. OK,

NOTE Confidence: 0.9301902

00:28:27.730 --> 00:28:27.810 and

NOTE Confidence: 0.74405676

00:28:31.870 --> 00:28:32.998 that's the end.

NOTE Confidence: 0.74405676

00:28:32.998 --> 00:28:37.278 He did such a good job.

NOTE Confidence: 0.74405676

00:28:37.278 --> 00:28:39.966 So we built this prototype in

NOTE Confidence: 0.74405676

00:28:39.966 --> 00:28:42.550 order to conduct some studies,

NOTE Confidence: 0.74405676

00:28:42.550 --> 00:28:45.604 and these studies would make use

NOTE Confidence: 0.74405676

00:28:45.604 --> 00:28:47.640 of this quantification procedure.

NOTE Confidence: 0.74405676

00:28:47.640 --> 00:28:49.345 Our follows of attention what

NOTE Confidence: 0.74405676

00:28:49.345 --> 00:28:52.353 we what we did is that we create

NOTE Confidence: 0.74405676

00:28:52.353 --> 00:28:54.393 large bodies of normative data

NOTE Confidence: 0.74405676

00:28:54.400 --> 00:28:56.390 for looking behavior and typically

NOTE Confidence: 0.74405676

00:28:56.390 --> 00:28:58.380 developing children as they watch

NOTE Confidence: 0.74405676

00:28:58.442 --> 00:29:00.738 all these things so that we would we

NOTE Confidence: 0.74405676

00:29:00.738 --> 00:29:02.867 could create this moment by moment

NOTE Confidence: 0.74405676

00:29:02.867 --> 00:29:04.737 normative benchmark against which we

NOTE Confidence: 0.74405676

00:29:04.737 --> 00:29:06.497 could compare individual children

NOTE Confidence: 0.74405676

00:29:06.497 --> 00:29:10.319 And the the first aim of this work

NOTE Confidence: 0.74405676

00:29:10.319 --> 00:29:12.939 was to derive quantitative indices

NOTE Confidence: 0.74405676

00:29:12.939 --> 00:29:15.680 for the classification of autism.

NOTE Confidence: 0.74405676

00:29:15.680 --> 00:29:18.488 And so as you see here, the children,

NOTE Confidence: 0.74405676

00:29:18.488 --> 00:29:21.208 each individual child diverges from

NOTE Confidence: 0.74405676

00:29:21.208 --> 00:29:24.239 that normative benchmark hundreds of times,

NOTE Confidence: 0.74405676

00:29:24.240 --> 00:29:26.160 hundreds if not thousands of times.

NOTE Confidence: 0.74405676

00:29:26.160 --> 00:29:28.519 Within the context of this procedure is

NOTE Confidence: 0.74405676

00:29:28.519 --> 00:29:30.640 about between 8:00 and 12:00 minutes.

NOTE Confidence: 0.74405676

00:29:30.640 --> 00:29:33.496 And so we would mind this thousands

NOTE Confidence: 0.74405676

00:29:33.496 --> 00:29:35.520 of divergences, as it were,

NOTE Confidence: 0.74405676

00:29:35.520 --> 00:29:37.520 in order to create a.

NOTE Confidence: 0.74405676

00:29:37.520 --> 00:29:39.160 A diagnostic classifier, OK,

NOTE Confidence: 0.74405676

00:29:39.160 --> 00:29:41.210 And the diagnostic classifier is

NOTE Confidence: 0.74405676

00:29:41.210 --> 00:29:43.799 always going to be the reference standard,

NOTE Confidence: 0.74405676

00:29:43.800 --> 00:29:45.480 the gold standard.

NOTE Confidence: 0.74405676

00:29:45.480 --> 00:29:48.248 So expert clinicians conducting the

NOTE Confidence: 0.74405676

00:29:48.248 --> 00:29:50.360 diagnosis independently of course,

NOTE Confidence: 0.74405676

00:29:50.360 --> 00:29:51.480 from this experimental procedure.

NOTE Confidence: 0.74405676

00:29:51.480 --> 00:29:54.239 But we wanted to do a little more as well,

NOTE Confidence: 0.74405676

00:29:54.240 --> 00:29:57.068 because for those of us who do

NOTE Confidence: 0.74405676

00:29:57.068 --> 00:29:58.453 those diagnostic evaluations,

NOTE Confidence: 0.74405676

00:29:58.453 --> 00:30:01.318 it's not only the diagnosis.

NOTE Confidence: 0.74405676

00:30:01.320 --> 00:30:02.988 Autism is a huge spectrum is

NOTE Confidence: 0.74405676

00:30:02.988 --> 00:30:05.203 very critical for us to have at

NOTE Confidence: 0.74405676

00:30:05.203 --> 00:30:06.595 least three additional measures.

NOTE Confidence: 0.74405676

00:30:06.600 --> 00:30:08.252 One is the level of autism or

NOTE Confidence: 0.74405676

00:30:08.252 --> 00:30:09.827 the level of social disability

NOTE Confidence: 0.74405676

00:30:09.827 --> 00:30:11.837 typically measure with the Ados,

NOTE Confidence: 0.74405676

00:30:11.840 --> 00:30:14.040 the Autism Diagnostic Observation Schedule,

NOTE Confidence: 0.74405676

00:30:14.040 --> 00:30:16.399 as well as the level of verbal

NOTE Confidence: 0.74405676

00:30:16.399 --> 00:30:17.835 learning and nonverbal learning

NOTE Confidence: 0.74405676

00:30:17.835 --> 00:30:20.327 and that of course coming from the

NOTE Confidence: 0.74405676

00:30:20.327 --> 00:30:22.319 Mullen Early Scales of learning.

NOTE Confidence: 0.74405676

00:30:22.320 --> 00:30:25.524 We wanted to be able to derive that too.

NOTE Confidence: 0.74405676

00:30:25.530 --> 00:30:27.210 So we conducted 3 studies.

NOTE Confidence: 0.74405676

00:30:27.210 --> 00:30:29.530 The first one packaged in,

NOTE Confidence: 0.74405676

00:30:29.530 --> 00:30:32.446 one we call the feasibility trial,

NOTE Confidence: 0.74405676

00:30:32.450 --> 00:30:34.825 had a discovery sample and

NOTE Confidence: 0.74405676

00:30:34.825 --> 00:30:36.250 a replication sample.

NOTE Confidence: 0.74405676

00:30:36.250 --> 00:30:37.486 And then there was a pivotal,

NOTE Confidence: 0.74405676

00:30:37.490 --> 00:30:38.870 a national pivotal trial.

NOTE Confidence: 0.74405676

00:30:38.870 --> 00:30:41.369 The goal we focus on 16 to

NOTE Confidence: 0.74405676

00:30:41.369 --> 00:30:42.777 30 month old children,

NOTE Confidence: 0.74405676

00:30:42.780 --> 00:30:45.780 primarily because of the

NOTE Confidence: 0.74405676

00:30:45.780 --> 00:30:47.220 the the federal mandate,

NOTE Confidence: 0.74405676

00:30:47.220 --> 00:30:48.660 the Part C services,

NOTE Confidence: 0.74405676

00:30:48.660 --> 00:30:50.030 the early division services that

NOTE Confidence: 0.74405676

00:30:50.030 --> 00:30:51.971 most of the children don't access to

NOTE Confidence: 0.74405676

00:30:51.971 --> 00:30:53.537 because they don't get a diagnosis.

NOTE Confidence: 0.74405676

00:30:53.540 --> 00:30:57.380 So we prioritize the age of 16 to 30 months.

NOTE Confidence: 0.74405676

00:30:57.380 --> 00:30:59.948 We wanted to know if this

NOTE Confidence: 0.74405676

00:30:59.948 --> 00:31:01.660 would accurately assess autism.

NOTE Confidence: 0.74405676

00:31:01.660 --> 00:31:04.294 Proxy in fact the diagnostic process

NOTE Confidence: 0.74405676

00:31:04.294 --> 00:31:06.506 executed by an expert clinician

NOTE Confidence: 0.74405676

00:31:06.506 --> 00:31:09.530 and we wanted to see the extent to

NOTE Confidence: 0.74405676

00:31:09.530 --> 00:31:12.049 which we could create those those

NOTE Confidence: 0.74405676

00:31:12.049 --> 00:31:14.394 measures of severity proxying anaidas

NOTE Confidence: 0.74405676

00:31:14.394 --> 00:31:17.378 and the two measures of the moment.

NOTE Confidence: 0.74405676

00:31:17.380 --> 00:31:22.144 The the discovery sample was over

NOTE Confidence: 0.74405676

00:31:22.144 --> 00:31:25.444 700 children primarily at Marcus.

NOTE Confidence: 0.74405676

00:31:25.444 --> 00:31:28.574 And the replication sample was

NOTE Confidence: 0.74405676

00:31:28.580 --> 00:31:31.373 370 toddlers and one was at Wash

NOTE Confidence: 0.74405676

00:31:31.373 --> 00:31:34.420 U with my friend John Constantino

NOTE Confidence: 0.74405676

00:31:34.420 --> 00:31:37.905 and the other part of it was in

NOTE Confidence: 0.74405676

00:31:37.905 --> 00:31:39.630 a community Health Center about

NOTE Confidence: 0.74405676

00:31:39.702 --> 00:31:41.842 50 miles north of of of Atlanta.

NOTE Confidence: 0.74405676

00:31:41.842 --> 00:31:44.730 We wanted to we want to see does this

NOTE Confidence: 0.74405676

00:31:44.730 --> 00:31:47.859 work in the real world K not in the lab.

NOTE Confidence: 0.74405676

00:31:47.860 --> 00:31:51.108 And then the second study was a

NOTE Confidence: 0.74405676

00:31:51.108 --> 00:31:53.131 pivotal trial national clinical

NOTE Confidence: 0.74405676

00:31:53.131 --> 00:31:54.944 trial with 335 toddlers.

NOTE Confidence: 0.74405676

00:31:54.944 --> 00:31:57.478 And we conducted that as Seattle Children's,

NOTE Confidence: 0.876166207142857

00:31:57.480 --> 00:32:00.051 Cincinnati Children's, UCSF,

00:32:00.051 --> 00:32:03.845 Rush Phoenix and Emery Ki.

00:32:03.845 --> 00:32:06.035 Know this is a little small,

00:32:06.040 --> 00:32:08.840 but this is from the visibility study.

00:32:08.840 --> 00:32:11.040 This is the discovery data

00:32:11.040 --> 00:32:12.800 and the replication data,

00:32:12.800 --> 00:32:14.668 the clinical characterization sample.

00:32:14.668 --> 00:32:18.256 And what you see here is that the

00:32:18.256 --> 00:32:20.720 kids were around 21 to 24 months.

00:32:20.720 --> 00:32:23.260 They represented the full spectrum.

00:32:23.260 --> 00:32:25.348 Of social disability through the Atos

00:32:25.348 --> 00:32:27.888 and the full spectrum of verbal and

00:32:27.888 --> 00:32:29.693 nonverbal ability using the Mullin.

00:32:29.700 --> 00:32:32.100 So some children were severely delayed,

00:32:32.100 --> 00:32:34.279 but some children are actually precocious.

00:32:34.279 --> 00:32:36.793 And this is the clinical characterization

00:32:36.793 --> 00:32:39.481 sample for the national trial And

NOTE Confidence: 0.876166207142857

00:32:39.481 --> 00:32:41.986 you see here the classification

NOTE Confidence: 0.876166207142857

00:32:41.986 --> 00:32:44.700 was autism versus not autism.

NOTE Confidence: 0.876166207142857

00:32:44.700 --> 00:32:46.776 It was not autism versus typical.

NOTE Confidence: 0.876166207142857

00:32:46.780 --> 00:32:51.136 OK, so of the 185 toddlers

NOTE Confidence: 0.876166207142857

00:32:51.136 --> 00:32:54.040 with non autism diagnosis.

NOTE Confidence: 0.876166207142857

00:32:54.040 --> 00:32:57.010 87.6% had other non autistic

NOTE Confidence: 0.876166207142857

00:32:57.010 --> 00:32:58.198 developmental delays,

NOTE Confidence: 0.876166207142857

00:32:58.200 --> 00:33:01.320 only 13 kids had no diagnosis.

NOTE Confidence: 0.876166207142857

00:33:01.320 --> 00:33:05.746 And of the $150.00 of Voltas and 42.7%

NOTE Confidence: 0.876166207142857

00:33:05.746 --> 00:33:08.076 did not have developmental delays.

NOTE Confidence: 0.876166207142857

00:33:08.080 --> 00:33:11.952 OK, so we had the full spectrum on

NOTE Confidence: 0.876166207142857

00:33:11.952 --> 00:33:14.920 both sides and here are the results.

NOTE Confidence: 0.876166207142857

00:33:14.920 --> 00:33:17.210 Ignore the discovery study because

NOTE Confidence: 0.876166207142857

00:33:17.210 --> 00:33:20.279 this is where we develop our mode.

NOTE Confidence: 0.876166207142857

00:33:20.280 --> 00:33:22.020 This is where develop our.

NOTE Confidence: 0.876166207142857

00:33:22.020 --> 00:33:23.700 Our mathematical model,

NOTE Confidence: 0.876166207142857

00:33:23.700 --> 00:33:26.500 but in the replication sample,

NOTE Confidence: 0.876166207142857

00:33:26.500 --> 00:33:28.820 the diagnostic classifier was able,

NOTE Confidence: 0.876166207142857

00:33:28.820 --> 00:33:30.850 we're able to achieve over

NOTE Confidence: 0.876166207142857

00:33:30.850 --> 00:33:32.436 80% of sensitivity,

NOTE Confidence: 0.876166207142857

00:33:32.436 --> 00:33:33.024 specificity,

NOTE Confidence: 0.876166207142857

00:33:33.024 --> 00:33:35.964 positive predictive value and negative

NOTE Confidence: 0.876166207142857

00:33:35.964 --> 00:33:39.004 predictive value and and and those

NOTE Confidence: 0.876166207142857

00:33:39.004 --> 00:33:42.008 numbers were fairly replicated in the

NOTE Confidence: 0.876166207142857

00:33:42.008 --> 00:33:44.930 national in the national clinical trial.

NOTE Confidence: 0.876166207142857

00:33:44.930 --> 00:33:48.446 What about our indices of severity?

NOTE Confidence: 0.876166207142857

00:33:48.450 --> 00:33:49.738 Remember that the ADAS,

NOTE Confidence: 0.876166207142857

00:33:49.738 --> 00:33:52.050 the higher the number on the ADAS,

NOTE Confidence: 0.876166207142857

00:33:52.050 --> 00:33:54.619 the more socially disabled you are and

NOTE Confidence: 0.876166207142857

00:33:54.619 --> 00:33:57.370 it's different in our eye tracking metric.

NOTE Confidence: 0.876166207142857

00:33:57.370 --> 00:34:00.128 That's why you have this direction here.

NOTE Confidence: 0.876166207142857

00:34:00.130 --> 00:34:01.430 But on the replication,

NOTE Confidence: 0.876166207142857

00:34:01.430 --> 00:34:02.405 say for example,

NOTE Confidence: 0.876166207142857

00:34:02.410 --> 00:34:05.828 we're able to capture 72% of the variance

NOTE Confidence: 0.876166207142857

00:34:05.828 --> 00:34:09.997 of ADA scores in that 8 to 12 minute

NOTE Confidence: 0.876166207142857

00:34:09.997 --> 00:34:13.910 procedure and in the national clinical trial.

NOTE Confidence: 0.876166207142857

00:34:13.910 --> 00:34:17.270 About 74% of that variance.

NOTE Confidence: 0.876166207142857

00:34:17.270 --> 00:34:17.982 OK,

NOTE Confidence: 0.876166207142857

00:34:17.982 --> 00:34:20.830 so you remember takes,

NOTE Confidence: 0.876166207142857

00:34:20.830 --> 00:34:22.870 it takes a well trained person to do aid us,

NOTE Confidence: 0.876166207142857

00:34:22.870 --> 00:34:24.590 a well trained person to do the Mullen.

NOTE Confidence: 0.876166207142857

00:34:24.590 --> 00:34:26.670 It takes a long time to complete that.

NOTE Confidence: 0.876166207142857

00:34:26.670 --> 00:34:28.380 What about the verbal ability

NOTE Confidence: 0.876166207142857

00:34:28.380 --> 00:34:29.748 on the replication sample,

NOTE Confidence: 0.876166207142857

00:34:29.750 --> 00:34:34.502 we're able to capture 58% of the variance

NOTE Confidence: 0.876166207142857

00:34:34.502 --> 00:34:38.650 and 65% of the variance of verbal

NOTE Confidence: 0.876166207142857

00:34:38.650 --> 00:34:42.150 ability and for nonverbal ability.

NOTE Confidence: 0.876166207142857

00:34:42.150 --> 00:34:44.412 About 64% of the data.

NOTE Confidence: 0.876166207142857

00:34:44.412 --> 00:34:48.079 So we are very happy with those results.

NOTE Confidence: 0.876166207142857

00:34:48.080 --> 00:34:50.240 But we needed to make sure particularly

NOTE Confidence: 0.876166207142857

00:34:50.240 --> 00:34:52.544 if you're dealing with FDA that you

NOTE Confidence: 0.876166207142857

00:34:52.544 --> 00:34:54.560 need to conduct studies that are called

NOTE Confidence: 0.876166207142857

00:34:54.560 --> 00:34:56.168 repeatability and reproducibility.

NOTE Confidence: 0.876166207142857

00:34:56.168 --> 00:34:59.384 So you need to quantify measurement

NOTE Confidence: 0.876166207142857

00:34:59.384 --> 00:35:00.640 precision, measurement error.

NOTE Confidence: 0.876166207142857

00:35:00.640 --> 00:35:03.160 So you need to put children through

NOTE Confidence: 0.876166207142857

00:35:03.160 --> 00:35:05.537 this ordeal which is the same child

NOTE Confidence: 0.876166207142857

00:35:05.537 --> 00:35:07.894 needs to complete the the procedure

NOTE Confidence: 0.876166207142857

00:35:07.894 --> 00:35:10.642 three times on the same device.

NOTE Confidence: 0.876166207142857

00:35:10.650 --> 00:35:13.289 And then three times again across devices,

NOTE Confidence: 0.876166207142857

00:35:13.290 --> 00:35:14.138 OK, measure,

NOTE Confidence: 0.876166207142857

00:35:14.138 --> 00:35:16.715 these are the infamous RNR studies,

NOTE Confidence: 0.876166207142857

00:35:16.715 --> 00:35:18.890 but the data are good.

NOTE Confidence: 0.876166207142857

00:35:18.890 --> 00:35:22.306 So that we could see that repeatability

NOTE Confidence: 0.876166207142857

00:35:22.306 --> 00:35:24.270 and representability variance was

NOTE Confidence: 0.876166207142857

00:35:24.270 --> 00:35:26.377 accounting for very little of

NOTE Confidence: 0.876166207142857

00:35:26.377 --> 00:35:29.226 what we've got and most of the

NOTE Confidence: 0.876166207142857

00:35:29.226 --> 00:35:31.856 variance really was due to between

NOTE Confidence: 0.876166207142857

00:35:31.856 --> 00:35:34.262 subject participant variance.

NOTE Confidence: 0.876166207142857

00:35:34.262 --> 00:35:36.489 So we are very,

NOTE Confidence: 0.876166207142857

00:35:36.489 --> 00:35:37.728 very happy with.

NOTE Confidence: 0.876166207142857

00:35:37.730 --> 00:35:39.078 This low measurement error

NOTE Confidence: 0.876166207142857

00:35:39.078 --> 00:35:41.100 because it gives us more precision

NOTE Confidence: 0.944898246153846

00:35:41.161 --> 00:35:44.101 what we do. And if I combine all of the

NOTE Confidence: 0.944898246153846

00:35:44.101 --> 00:35:46.530 studies together this is this is the data.

NOTE Confidence: 0.944898246153846

00:35:46.530 --> 00:35:49.610 These are the sensitivity, specificity,

NOTE Confidence: 0.944898246153846

00:35:49.610 --> 00:35:52.310 PPV&amp;PV and accuracy of the device

NOTE Confidence: 0.944898246153846

00:35:52.310 --> 00:35:56.386 right now and and here are the the

NOTE Confidence: 0.944898246153846

00:35:56.386 --> 00:35:58.402 amount of variance that they are

NOTE Confidence: 0.944898246153846

00:35:58.402 --> 00:36:00.130 capturing of social disability.

NOTE Confidence: 0.944898246153846

00:36:00.130 --> 00:36:02.524 The aid us verbal ability to Mullen,

NOTE Confidence: 0.944898246153846

00:36:02.530 --> 00:36:05.204 nonverbal ability from the Mullen as well.

NOTE Confidence: 0.944898246153846

00:36:05.210 --> 00:36:08.486 So how can I summarize this?

NOTE Confidence: 0.944898246153846

00:36:08.490 --> 00:36:11.106 Happy that we got high sensitivity

NOTE Confidence: 0.944898246153846

00:36:11.106 --> 00:36:13.324 and specificity when comparing those

NOTE Confidence: 0.944898246153846

00:36:13.324 --> 00:36:17.280 eye tracking assays with expert

NOTE Confidence: 0.944898246153846

00:36:17.280 --> 00:36:21.484 clinician diagnosis with sensitivity

NOTE Confidence: 0.944898246153846

00:36:21.484 --> 00:36:24.432 and specificity and PPV&amp;NP V / 80%.

NOTE Confidence: 0.944898246153846

00:36:24.432 --> 00:36:27.080 And very happy that they are also capturing

NOTE Confidence: 0.944898246153846

00:36:27.146 --> 00:36:29.326 large variances of those indices.

NOTE Confidence: 0.944898246153846

00:36:29.330 --> 00:36:32.022 Those reference standard indices

NOTE Confidence: 0.944898246153846

00:36:32.022 --> 00:36:35.570 of severity and the goal here is

NOTE Confidence: 0.944898246153846

00:36:35.570 --> 00:36:37.770 never to replace the clinician.

NOTE Confidence: 0.944898246153846

00:36:37.770 --> 00:36:40.122 The goal here is to free the

NOTE Confidence: 0.944898246153846

00:36:40.122 --> 00:36:42.414 clinician to spend more time with the

NOTE Confidence: 0.944898246153846

00:36:42.414 --> 00:36:44.670 parents so that we can do what the

NOTE Confidence: 0.944898246153846

00:36:44.740 --> 00:36:47.170 diagnostic process is supposed to be.

NOTE Confidence: 0.944898246153846

00:36:47.170 --> 00:36:49.843 Is only supposed to be a window to treat.

NOTE Confidence: 0.944898246153846

00:36:49.850 --> 00:36:52.379 So we need to make sure that clinicians have

NOTE Confidence: 0.944898246153846

00:36:52.379 --> 00:36:54.966 more time to spend time counseling a family,

NOTE Confidence: 0.944898246153846

00:36:54.970 --> 00:36:56.209 supporting the family,

NOTE Confidence: 0.944898246153846

00:36:56.209 --> 00:36:57.448 and most importantly,

NOTE Confidence: 0.944898246153846

00:36:57.450 --> 00:36:59.784 doing the care coordination so that

NOTE Confidence: 0.944898246153846

00:36:59.784 --> 00:37:01.900 we can translate diagnostic results.

NOTE Confidence: 0.944898246153846

00:37:01.900 --> 00:37:03.790 Into actual treatment.

NOTE Confidence: 0.944898246153846

00:37:03.790 --> 00:37:08.200 So the good news about this procedure

NOTE Confidence: 0.944898246153846

00:37:08.305 --> 00:37:12.780 is that this was done under FDA

NOTE Confidence: 0.944898246153846

00:37:12.780 --> 00:37:15.764 sort of rules for past 6-7 years

NOTE Confidence: 0.944898246153846

00:37:15.764 --> 00:37:19.208 and they cleared this device as a

NOTE Confidence: 0.944898246153846

00:37:19.208 --> 00:37:22.538 clinical tool since June of last year.

NOTE Confidence: 0.944898246153846

00:37:22.540 --> 00:37:26.825 So this is now a clinical tool which is very,

NOTE Confidence: 0.944898246153846

00:37:26.825 --> 00:37:29.270 very, very exciting.

NOTE Confidence: 0.944898246153846

00:37:29.270 --> 00:37:31.342 The idea is to support a public

NOTE Confidence: 0.944898246153846

00:37:31.342 --> 00:37:33.421 health system that does not have

NOTE Confidence: 0.944898246153846

00:37:33.421 --> 00:37:34.546 enough extra clinicians.

NOTE Confidence: 0.944898246153846

00:37:34.550 --> 00:37:37.558 The idea is to deploy tools that are

NOTE Confidence: 0.944898246153846

00:37:37.558 --> 00:37:40.230 cost effective and will increase access,

NOTE Confidence: 0.944898246153846

00:37:40.230 --> 00:37:42.170 particularly for those families

NOTE Confidence: 0.944898246153846

00:37:42.170 --> 00:37:43.625 that are marginalized,

NOTE Confidence: 0.944898246153846

00:37:43.630 --> 00:37:45.982 particularly low income minority

NOTE Confidence: 0.944898246153846

00:37:45.982 --> 00:37:47.746 and rural families.

NOTE Confidence: 0.944898246153846

00:37:47.750 --> 00:37:48.225 Autism.

NOTE Confidence: 0.944898246153846

00:37:48.225 --> 00:37:52.025 Well, it's it's the same in most healthcare,

NOTE Confidence: 0.944898246153846

00:37:52.030 --> 00:37:53.590 but in autism in particular,

NOTE Confidence: 0.944898246153846

00:37:53.590 --> 00:37:57.130 the healthcare disparities are stark.

NOTE Confidence: 0.944898246153846

00:37:57.130 --> 00:37:58.762 If you are a black child

NOTE Confidence: 0.944898246153846

00:37:58.762 --> 00:38:00.410 with autism in this country,

NOTE Confidence: 0.944898246153846

00:38:00.410 --> 00:38:02.720 you are at double the risk of

NOTE Confidence: 0.944898246153846

00:38:02.720 --> 00:38:04.373 intellectual disability than a white

NOTE Confidence: 0.944898246153846

00:38:04.373 --> 00:38:06.167 child with autism in this country.

NOTE Confidence: 0.944898246153846

00:38:06.170 --> 00:38:09.084 And that is so not because, believe me,

NOTE Confidence: 0.944898246153846

00:38:09.084 --> 00:38:12.430 we have a whole grant with our our,

NOTE Confidence: 0.944898246153846

00:38:12.430 --> 00:38:14.476 our colleagues at UCLA and Wash

NOTE Confidence: 0.944898246153846

00:38:14.476 --> 00:38:15.524 U and what not.

NOTE Confidence: 0.944898246153846

00:38:15.530 --> 00:38:17.078 It's not the genetics,

NOTE Confidence: 0.944898246153846

00:38:17.078 --> 00:38:19.400 it's really the access is those

NOTE Confidence: 0.944898246153846

00:38:19.475 --> 00:38:21.223 early experiences that those

NOTE Confidence: 0.944898246153846

00:38:21.223 --> 00:38:23.845 families are being the pride of.

NOTE Confidence: 0.944898246153846

00:38:23.850 --> 00:38:25.915 So we need to solve this problem.

NOTE Confidence: 0.944898246153846

00:38:25.920 --> 00:38:27.980 And with early identification

NOTE Confidence: 0.944898246153846

00:38:27.980 --> 00:38:30.555 leading to effective early treatment,

NOTE Confidence: 0.944898246153846

00:38:30.560 --> 00:38:32.800 we can change lifetime outcomes.

NOTE Confidence: 0.944898246153846

00:38:32.800 --> 00:38:35.173 So the good news also is that

NOTE Confidence: 0.944898246153846

00:38:35.173 --> 00:38:37.742 this was the size of, you know,

NOTE Confidence: 0.944898246153846

00:38:37.742 --> 00:38:39.797 is half a fridge okay.

NOTE Confidence: 0.944898246153846

00:38:39.800 --> 00:38:41.930 This was not something that could

NOTE Confidence: 0.944898246153846

00:38:41.930 --> 00:38:43.680 be deployed, you know, very broadly.

NOTE Confidence: 0.944898246153846

00:38:43.680 --> 00:38:45.520 So this is what it looks now.

NOTE Confidence: 0.91446605

00:38:48.920 --> 00:38:51.200 Oops. So this is what it looks now.

NOTE Confidence: 0.91446605

00:38:51.200 --> 00:38:53.279 So we were able to miniaturize that.

NOTE Confidence: 0.91446605

00:38:53.280 --> 00:38:55.877 So that's now in a tablet version.

NOTE Confidence: 0.91446605

00:38:55.880 --> 00:39:00.308 So there is a built in eye tracker and

NOTE Confidence: 0.91446605

00:39:00.308 --> 00:39:03.290 that tablet can be deployed anywhere

NOTE Confidence: 0.91446605

00:39:03.290 --> 00:39:05.780 there is Internet connectivity because

NOTE Confidence: 0.91446605

00:39:05.853 --> 00:39:08.241 the technician can sit anywhere and

NOTE Confidence: 0.91446605

00:39:08.241 --> 00:39:11.118 that can actually be shipped by a UPS.

NOTE Confidence: 0.91446605

00:39:11.120 --> 00:39:12.992 So very happy with the way

NOTE Confidence: 0.91446605

00:39:12.992 --> 00:39:14.240 that things are going.

NOTE Confidence: 0.91446605

00:39:14.240 --> 00:39:16.880 Now we're very interested in,

NOTE Confidence: 0.91446605

00:39:16.880 --> 00:39:18.232 in in tailoring those

NOTE Confidence: 0.91446605

00:39:18.232 --> 00:39:19.922 devices to context of use.

NOTE Confidence: 0.91446605

00:39:19.930 --> 00:39:23.115 So for those of you who sort of you

NOTE Confidence: 0.91446605

00:39:23.115 --> 00:39:25.185 know like boring stuff like positive

NOTE Confidence: 0.91446605

00:39:25.185 --> 00:39:26.747 predictive value and negative

NOTE Confidence: 0.91446605

00:39:26.747 --> 00:39:28.858 predictive value and Needless to say,

NOTE Confidence: 0.91446605

00:39:28.858 --> 00:39:30.610 the moment that you sort of

NOTE Confidence: 0.91446605

00:39:30.677 --> 00:39:32.809 maximize negative predictive value,

NOTE Confidence: 0.91446605

00:39:32.810 --> 00:39:34.750 you sort of minimize positive

NOTE Confidence: 0.91446605

00:39:34.750 --> 00:39:36.690 predictive value and vice versa.

NOTE Confidence: 0.91446605

00:39:36.690 --> 00:39:39.210 And this is basically where our device is,

NOTE Confidence: 0.91446605

00:39:39.210 --> 00:39:40.956 is right here.

NOTE Confidence: 0.91446605

00:39:40.956 --> 00:39:44.448 So for the context of a

NOTE Confidence: 0.91446605

00:39:44.450 --> 00:39:45.726 clinical context of use,

NOTE Confidence: 0.91446605

00:39:45.726 --> 00:39:48.090 just like the clinical trial that we did,

NOTE Confidence: 0.91446605

00:39:48.090 --> 00:39:50.090 these are all specialized clinics.

NOTE Confidence: 0.91446605

00:39:50.090 --> 00:39:53.150 For that then we have that, OK,

NOTE Confidence: 0.91446605

00:39:53.150 --> 00:39:56.050 sensitivity and specificity are both

NOTE Confidence: 0.91446605

00:39:56.050 --> 00:39:58.456 optimized and what the results is

NOTE Confidence: 0.91446605

00:39:58.456 --> 00:40:01.330 that we can actually make statements,

NOTE Confidence: 0.91446605

00:40:01.330 --> 00:40:03.234 very precise statements of

NOTE Confidence: 0.91446605

00:40:03.234 --> 00:40:05.614 probabilistic statements of a child

NOTE Confidence: 0.91446605

00:40:05.614 --> 00:40:08.089 having autism or not having autism,

NOTE Confidence: 0.91446605

00:40:08.090 --> 00:40:09.970 OK.

NOTE Confidence: 0.91446605

00:40:09.970 --> 00:40:11.884 One thing that was a serendipitous

NOTE Confidence: 0.91446605

00:40:11.884 --> 00:40:14.108 kind of a thing we didn't expect

NOTE Confidence: 0.91446605

00:40:14.108 --> 00:40:16.589 that to happen is that in the sample

NOTE Confidence: 0.91446605

00:40:16.589 --> 00:40:18.731 for the national clinical trial what

NOTE Confidence: 0.91446605

00:40:18.731 --> 00:40:22.090 we found out is that if you go by

NOTE Confidence: 0.91446605

00:40:22.090 --> 00:40:23.610 clinician reference standard diagnosis,

NOTE Confidence: 0.91446605

00:40:23.610 --> 00:40:27.362 we found that they were both ethnic

NOTE Confidence: 0.91446605

00:40:27.362 --> 00:40:31.770 and racial bias as you can see here

NOTE Confidence: 0.91446605

00:40:31.770 --> 00:40:35.058 when we went by the by the device.

NOTE Confidence: 0.91446605

00:40:35.060 --> 00:40:36.236 Diagnostic classifier.

NOTE Confidence: 0.91446605

00:40:36.236 --> 00:40:39.764 Both that racial and and and

NOTE Confidence: 0.91446605

00:40:39.764 --> 00:40:42.580 and ethnicity bias disappeared.

NOTE Confidence: 0.91446605

00:40:42.580 --> 00:40:45.100 We don't know what that is due to,

NOTE Confidence: 0.91446605

00:40:45.100 --> 00:40:47.572 but this is something that we

NOTE Confidence: 0.91446605

00:40:47.572 --> 00:40:50.207 certainly are going to to to focus on.

NOTE Confidence: 0.91446605

00:40:50.207 --> 00:40:51.950 But let me say something about the

NOTE Confidence: 0.91446605

00:40:52.005 --> 00:40:54.266 possibility of using this device in the

NOTE Confidence: 0.91446605

00:40:54.266 --> 00:40:56.140 context of population based screening.

NOTE Confidence: 0.91446605

00:40:56.140 --> 00:40:57.625 There pediatricians tell us all

NOTE Confidence: 0.91446605

00:40:57.625 --> 00:40:59.942 the time they don't want to tell a

NOTE Confidence: 0.91446605

00:40:59.942 --> 00:41:01.496 family that your child has autism,

NOTE Confidence: 0.91446605

00:41:01.500 --> 00:41:03.418 they want to tell a family your

NOTE Confidence: 0.91446605

00:41:03.418 --> 00:41:05.020 child does not have autism.

NOTE Confidence: 0.91446605

00:41:05.020 --> 00:41:07.351 They that's what they want to say and so

NOTE Confidence: 0.91446605

00:41:07.351 --> 00:41:09.739 you maximize negative predictive value.

NOTE Confidence: 0.91446605

00:41:09.740 --> 00:41:13.284 So where we to use this device in the

NOTE Confidence: 0.91446605

00:41:13.284 --> 00:41:15.418 context of population based screening,

NOTE Confidence: 0.91446605

00:41:15.420 --> 00:41:17.660 we might be able to make those kinds

NOTE Confidence: 0.91446605

00:41:17.660 --> 00:41:20.166 of of of of statements of probability

NOTE Confidence: 0.91446605

00:41:20.166 --> 00:41:22.696 including to be able to get to not

NOTE Confidence: 0.91446605

00:41:22.696 --> 00:41:25.781 over 99% of probability reassuring

NOTE Confidence: 0.91446605

00:41:25.781 --> 00:41:28.028 the pediatrician you can say to the

NOTE Confidence: 0.91446605

00:41:28.028 --> 00:41:30.172 family your child does not have autism

NOTE Confidence: 0.91446605

00:41:30.172 --> 00:41:32.060 basically come out of the system.

NOTE Confidence: 0.91446605

00:41:32.060 --> 00:41:35.084 Let's focus on those who need our attention.

NOTE Confidence: 0.91446605

00:41:35.090 --> 00:41:35.544 OK,

NOTE Confidence: 0.91446605

00:41:35.544 --> 00:41:39.176 very quickly now we we have an NIH

NOTE Confidence: 0.91446605

00:41:39.176 --> 00:41:42.549 grant now that basically downwards

NOTE Confidence: 0.91446605

00:41:42.549 --> 00:41:46.761 extends the utilization of this device.

NOTE Confidence: 0.91446605

00:41:46.770 --> 00:41:50.872 We are pairing with our college pediatricians

NOTE Confidence: 0.91446605

00:41:50.872 --> 00:41:53.866 pediatric practices at nine month old,

NOTE Confidence: 0.91446605

00:41:53.866 --> 00:41:56.590 nine month well well baby checkups.

NOTE Confidence: 0.91446605

00:41:56.590 --> 00:41:58.641 And so the baby goes and finishes

NOTE Confidence: 0.91446605

00:41:58.641 --> 00:42:00.428 the nine month well baby check

NOTE Confidence: 0.91446605

00:42:00.428 --> 00:42:02.395 up and then steps into our van

NOTE Confidence: 0.91446605

00:42:02.458 --> 00:42:04.230 and completes this procedure.

NOTE Confidence: 0.91446605

00:42:04.230 --> 00:42:08.334 We are now using it truly as

NOTE Confidence: 0.91446605

00:42:08.334 --> 00:42:10.470 a quantitative population

NOTE Confidence: 0.96708925

00:42:10.470 --> 00:42:13.788 based screening device.

NOTE Confidence: 0.96708925

00:42:13.790 --> 00:42:15.946 I want to say one final thing

NOTE Confidence: 0.96708925

00:42:15.946 --> 00:42:17.248 about something that I've

NOTE Confidence: 0.96708925

00:42:17.248 --> 00:42:19.144 learned here which is you know,

NOTE Confidence: 0.96708925

00:42:19.150 --> 00:42:21.450 Sally Province is to say.

NOTE Confidence: 0.96708925

00:42:21.450 --> 00:42:25.330 Go and spend one year in that daycare,

NOTE Confidence: 0.96708925

00:42:25.330 --> 00:42:26.830 the hospital daycare,

NOTE Confidence: 0.96708925

00:42:26.830 --> 00:42:31.270 sit in the corner and do nothing.

NOTE Confidence: 0.96708925

00:42:31.270 --> 00:42:33.210 Observe, right.

NOTE Confidence: 0.96708925

00:42:33.210 --> 00:42:34.806 So this is what we've been doing.

NOTE Confidence: 0.96708925

00:42:34.810 --> 00:42:38.500 This is McDonald and Jim and and

NOTE Confidence: 0.96708925

00:42:38.500 --> 00:42:42.540 and all of you have taught me is.

NOTE Confidence: 0.96708925

00:42:42.540 --> 00:42:44.964 You want to be a walking

NOTE Confidence: 0.96708925

00:42:44.964 --> 00:42:46.580 laboratory of social engagement.

NOTE Confidence: 0.96708925

00:42:46.580 --> 00:42:48.410 You want to be somebody who

NOTE Confidence: 0.96708925

00:42:48.410 --> 00:42:50.065 can actually sense how much

NOTE Confidence: 0.96708925

00:42:50.065 --> 00:42:51.895 children are getting from this.

NOTE Confidence: 0.96708925

00:42:51.900 --> 00:42:52.860 But can we quantify,

NOTE Confidence: 0.96708925

00:42:52.860 --> 00:42:54.300 Donald is the one who said,

NOTE Confidence: 0.96708925

00:42:54.300 --> 00:42:56.058 I mean, this whole business of,

NOTE Confidence: 0.96708925

00:42:56.060 --> 00:42:57.458 you know, you're a good clinician,

NOTE Confidence: 0.96708925

00:42:57.460 --> 00:42:59.452 but can you elevate it to

NOTE Confidence: 0.96708925

00:42:59.452 --> 00:43:00.700 the plane of science?

NOTE Confidence: 0.96708925

00:43:00.700 --> 00:43:03.108 And Donald is the one who's sort of

NOTE Confidence: 0.96708925

00:43:03.108 --> 00:43:04.900 prompting us to do this kind of thing.

NOTE Confidence: 0.96708925

00:43:04.900 --> 00:43:09.210 So here is what life is like, K.

NOTE Confidence: 0.96708925

00:43:09.210 --> 00:43:11.850 Now this is what typically

NOTE Confidence: 0.96708925

00:43:11.850 --> 00:43:14.490 developing toddlers are looking at.

NOTE Confidence: 0.96708925

00:43:14.490 --> 00:43:18.009 This is what a child devotism is looking at.

NOTE Confidence: 0.96708925

00:43:18.010 --> 00:43:19.410 Let's look now at pointing,

NOTE Confidence: 0.96708925

00:43:19.410 --> 00:43:20.094 social monitoring,

NOTE Confidence: 0.96708925

00:43:20.094 --> 00:43:21.804 joint detention being so important.

NOTE Confidence: 0.96708925

00:43:21.810 --> 00:43:24.239 OK, so this is what the typically

NOTE Confidence: 0.96708925

00:43:24.239 --> 00:43:26.010 developing children are looking at.

NOTE Confidence: 0.96708925

00:43:26.010 --> 00:43:27.882 And this is what one single

NOTE Confidence: 0.96708925

00:43:27.882 --> 00:43:29.370 child devotism is looking at.

NOTE Confidence: 0.96708925

00:43:29.370 --> 00:43:31.722 And here is now facial affect and

NOTE Confidence: 0.96708925

00:43:31.722 --> 00:43:34.006 you see where most children are

NOTE Confidence: 0.96708925

00:43:34.006 --> 00:43:36.220 looking at and you see what the

NOTE Confidence: 0.96708925

00:43:36.220 --> 00:43:37.630 child devotism is looking at.

NOTE Confidence: 0.96708925

00:43:37.630 --> 00:43:41.550 And here is another one facial effect.

NOTE Confidence: 0.96708925

00:43:41.550 --> 00:43:43.839 Can you see and this is where

NOTE Confidence: 0.96708925

00:43:43.839 --> 00:43:45.871 the child devotism is looking at

NOTE Confidence: 0.96708925

00:43:45.871 --> 00:43:47.833 and now we can basically there

NOTE Confidence: 0.96708925

00:43:47.833 --> 00:43:49.865 are hundreds and hundreds of

NOTE Confidence: 0.96708925

00:43:49.865 --> 00:43:51.910 those examples in our videos.

NOTE Confidence: 0.96708925

00:43:51.910 --> 00:43:54.898 And So what we're trying to do now is

NOTE Confidence: 0.96708925

00:43:54.898 --> 00:43:58.306 to derive indices that are skill based,

NOTE Confidence: 0.96708925

00:43:58.310 --> 00:44:00.355 something that we can actually

NOTE Confidence: 0.96708925

00:44:00.355 --> 00:44:02.750 give to the interventions and say,

NOTE Confidence: 0.96708925

00:44:02.750 --> 00:44:05.165 well this is where the child is.

NOTE Confidence: 0.96708925

00:44:05.170 --> 00:44:08.488 In terms of processing social affect

NOTE Confidence: 0.96708925

00:44:08.490 --> 00:44:11.474 or facial gestures or or or or or

NOTE Confidence: 0.96708925

00:44:11.474 --> 00:44:14.048 joint attention or or anything of that.

NOTE Confidence: 0.96708925

00:44:14.050 --> 00:44:16.288 So one of the things that we're

NOTE Confidence: 0.96708925

00:44:16.288 --> 00:44:18.680 trying to do now is to derive this

NOTE Confidence: 0.96708925

00:44:18.749 --> 00:44:21.074 quantitative indices of skill based

NOTE Confidence: 0.96708925

00:44:21.074 --> 00:44:23.399 milestones for treatment because I

NOTE Confidence: 0.96708925

00:44:23.471 --> 00:44:25.911 mean you guys know that one of the

NOTE Confidence: 0.96708925

00:44:25.911 --> 00:44:28.264 things that people who work if a BA

NOTE Confidence: 0.96708925

00:44:28.264 --> 00:44:30.909 and what not in early intervention.

NOTE Confidence: 0.96708925

00:44:30.910 --> 00:44:32.734 And treatment is that they spend

NOTE Confidence: 0.96708925

00:44:32.734 --> 00:44:35.095 a lot of time collecting a lot

NOTE Confidence: 0.96708925

00:44:35.095 --> 00:44:37.237 of data that is not standardized

NOTE Confidence: 0.96708925

00:44:37.237 --> 00:44:39.587 that drives payers crazy and takes

NOTE Confidence: 0.96708925

00:44:39.587 --> 00:44:41.507 hours upon hours upon hours.

NOTE Confidence: 0.96708925

00:44:41.510 --> 00:44:43.376 And so they need to document

NOTE Confidence: 0.96708925

00:44:43.376 --> 00:44:45.350 progress or not of the child.

NOTE Confidence: 0.96708925

00:44:45.350 --> 00:44:46.976 This is time that they are

NOTE Confidence: 0.96708925

00:44:46.976 --> 00:44:47.789 not providing services.

NOTE Confidence: 0.96708925

00:44:47.790 --> 00:44:49.707 So that's what we're trying to do as well.

NOTE Confidence: 0.96708925

00:44:49.710 --> 00:44:51.426 We are trying to basically advise

NOTE Confidence: 0.958703166666667

00:44:53.550 --> 00:44:55.068 develop those quantitative

NOTE Confidence: 0.958703166666667

00:44:55.068 --> 00:45:00.090 indices of those important skills.

NOTE Confidence: 0.958703166666667

00:45:00.090 --> 00:45:03.330 You know, what I've learned in the past

NOTE Confidence: 0.958703166666667

00:45:03.330 --> 00:45:06.618 20-30 years in fact working in this

NOTE Confidence: 0.958703166666667

00:45:06.618 --> 00:45:09.650 field is that autism is not a disease.

NOTE Confidence: 0.958703166666667

00:45:09.650 --> 00:45:11.010 Autism is not a disease.

NOTE Confidence: 0.958703166666667

73

00:45:11.010 --> 00:45:12.409 Autism is a trait.

NOTE Confidence: 0.958703166666667

00:45:12.410 --> 00:45:14.770 Autism is a genetic trait.

NOTE Confidence: 0.958703166666667

00:45:14.770 --> 00:45:16.250 Autism is something that may

NOTE Confidence: 0.958703166666667

00:45:16.250 --> 00:45:18.490 or may not lead to disability.

NOTE Confidence: 0.958703166666667

00:45:18.490 --> 00:45:21.586 And whether it does so depends

NOTE Confidence: 0.958703166666667

00:45:21.586 --> 00:45:25.130 very much on us if we want to know

NOTE Confidence: 0.958703166666667

00:45:25.130 --> 00:45:27.486 where those 95,000 babies that are

NOTE Confidence: 0.958703166666667

00:45:27.486 --> 00:45:30.180 born every year who have autism.

NOTE Confidence: 0.958703166666667

00:45:30.180 --> 00:45:31.979 Where are they going to end up?

NOTE Confidence: 0.958703166666667

00:45:31.980 --> 00:45:33.690 One of the largest treatment programs

NOTE Confidence: 0.958703166666667

00:45:33.690 --> 00:45:36.373 that we have at our center is treatment

NOTE Confidence: 0.958703166666667

00:45:36.373 --> 00:45:37.853 for severe behavior challenges.

NOTE Confidence: 0.958703166666667

00:45:37.860 --> 00:45:40.300 Is a self injury, is a lovement, is.

NOTE Confidence: 0.958703166666667

00:45:40.300 --> 00:45:41.900 Is, Is aggression is,

NOTE Confidence: 0.958703166666667

00:45:41.900 --> 00:45:42.940 I mean you name it,

NOTE Confidence: 0.958703166666667

00:45:42.940 --> 00:45:46.828 K We would like to put that program out

NOTE Confidence: 0.958703166666667

00:45:46.828 --> 00:45:48.830 of business because what I've learned

NOTE Confidence: 0.958703166666667

00:45:48.830 --> 00:45:51.340 is that the greatest burdens of autism,

NOTE Confidence: 0.958703166666667

00:45:51.340 --> 00:45:52.780 the intellectual disability,

NOTE Confidence: 0.958703166666667

00:45:52.780 --> 00:45:54.220 the languages ability,

NOTE Confidence: 0.958703166666667

00:45:54.220 --> 00:45:56.047 and the severe behavior challenges are not

NOTE Confidence: 0.958703166666667

00:45:56.047 --> 00:45:58.289 part of the definition of this condition.

NOTE Confidence: 0.958703166666667

00:45:58.290 --> 00:46:00.490 They are not inevitable.

NOTE Confidence: 0.958703166666667

00:46:00.490 --> 00:46:02.690 They are the results,

NOTE Confidence: 0.958703166666667

00:46:02.690 --> 00:46:04.298 particularly for some children

NOTE Confidence: 0.958703166666667

00:46:04.298 --> 00:46:06.710 whose access to any supports come

NOTE Confidence: 0.958703166666667

00:46:06.780 --> 00:46:08.730 only during their school years.

NOTE Confidence: 0.958703166666667

00:46:08.730 --> 00:46:11.670 So that's what we want and ultimately

NOTE Confidence: 0.958703166666667

00:46:11.670 --> 00:46:14.260 we would like to change the narrative

NOTE Confidence: 0.958703166666667

00:46:14.260 --> 00:46:17.274 of this condition from one of disability

NOTE Confidence: 0.958703166666667

00:46:17.274 --> 00:46:21.470 to one of possibility and promise.

NOTE Confidence: 0.958703166666667

00:46:21.470 --> 00:46:23.258 These are all the different foundations

NOTE Confidence: 0.958703166666667

00:46:23.258 --> 00:46:25.188 that have been supporting over the years,

NOTE Confidence: 0.958703166666667

00:46:25.190 --> 00:46:27.584 the wonderful people who have been

NOTE Confidence: 0.958703166666667

00:46:27.584 --> 00:46:29.910 working in all those projects.

NOTE Confidence: 0.958703166666667

00:46:29.910 --> 00:46:30.710 Doctor Martin,

NOTE Confidence: 0.94226628

00:46:42.420 --> 00:46:44.532 I assume that if people would like to

NOTE Confidence: 0.94226628

00:46:44.532 --> 00:46:46.620 ask questions, I'm here. If we have you

NOTE Confidence: 0.9402536

00:46:46.620 --> 00:46:48.570 assume correctly and if you are

NOTE Confidence: 0.9402536

00:46:48.570 --> 00:46:50.324 on Zoom, please let us know.

NOTE Confidence: 0.9402536

00:46:50.324 --> 00:46:51.980 And if you're in the crowd,

NOTE Confidence: 0.9402536

00:46:51.980 --> 00:46:53.556 hold on a second.

NOTE Confidence: 0.9402536

00:46:53.556 --> 00:46:55.379 Doctor Crowley is got it started.

NOTE Confidence: 0.9603804

00:47:02.380 --> 00:47:05.252 Doctor Clan brings back memories

NOTE Confidence: 0.9603804

00:47:05.252 --> 00:47:07.260 and it was a great pleasure to see

NOTE Confidence: 0.9603804

00:47:07.260 --> 00:47:08.695 you head out of the park again.

NOTE Confidence: 0.931627828571429

00:47:10.220 --> 00:47:12.299 So I'm going to save some of

NOTE Confidence: 0.931627828571429

00:47:12.300 --> 00:47:13.740 my questions for later today.

NOTE Confidence: 0.931627828571429

00:47:13.740 --> 00:47:14.980 But my specific question

NOTE Confidence: 0.931627828571429

00:47:14.980 --> 00:47:17.300 is the Ados is a gold

NOTE Confidence: 0.957025933333333

00:47:17.300 --> 00:47:20.018 standard for assessment of autism and

NOTE Confidence: 0.957025933333333

00:47:20.018 --> 00:47:22.500 you're presenting these assessments to

NOTE Confidence: 0.957025933333333

00:47:22.500 --> 00:47:25.460 predict to that and I think you said.

NOTE Confidence: 0.957025933333333

00:47:25.460 --> 00:47:26.705 68% of the variance was accounted

NOTE Confidence: 0.957025933333333

00:47:26.705 --> 00:47:28.256 for and was that right and what

NOTE Confidence: 0.943608066666667

00:47:28.260 --> 00:47:29.460 I was thinking little over

NOTE Confidence: 0.943608066666667

00:47:29.460 --> 00:47:30.162 that, little over that,

NOTE Confidence: 0.943608066666667

00:47:30.162 --> 00:47:31.218 what was it again, what was the

NOTE Confidence: 0.9301902

00:47:33.300 --> 00:47:34.060 747474? But what I was

NOTE Confidence: 0.9509459625

00:47:34.060 --> 00:47:36.478 thinking was what if the autism

NOTE Confidence: 0.9509459625

00:47:36.478 --> 00:47:39.105 diagnosis is actually or that that

NOTE Confidence: 0.9509459625

00:47:39.105 --> 00:47:41.390 measure is actually imperfect and

NOTE Confidence: 0.9509459625

00:47:41.390 --> 00:47:43.030 your measure actually accounts

NOTE Confidence: 0.9509459625

00:47:43.030 --> 00:47:45.086 for variability in impairment and

NOTE Confidence: 0.9509459625

00:47:45.086 --> 00:47:46.270 functioning and long term things And

NOTE Confidence: 0.9509459625

00:47:46.270 --> 00:47:47.657 do you have any data to speak to that?

NOTE Confidence: 0.93421556

00:47:48.460 --> 00:47:52.270 So Michael, I will have you speak of the FDA.

NOTE Confidence: 0.93421556

00:47:52.270 --> 00:47:54.670 Whenever you are developing any

NOTE Confidence: 0.93421556

00:47:54.670 --> 00:47:57.136 medical device, any medical procedure,

NOTE Confidence: 0.93421556

00:47:57.136 --> 00:48:00.148 but certainly a medical device procedure,

NOTE Confidence: 0.93421556

00:48:00.150 --> 00:48:03.349 you need to emulate a reference standard.

NOTE Confidence: 0.93421556

00:48:03.350 --> 00:48:05.786 You cannot be better than your reference

NOTE Confidence: 0.93421556

00:48:05.786 --> 00:48:07.870 standard because you're going to be wrong.

NOTE Confidence: 0.93421556

00:48:07.870 --> 00:48:09.690 You understand what I mean?

NOTE Confidence: 0.93421556

00:48:09.690 --> 00:48:12.392 So for A, it doesn't matter if

NOTE Confidence: 0.93421556

00:48:12.392 --> 00:48:14.890 you're working in oncology or or

NOTE Confidence: 0.93421556

00:48:14.890 --> 00:48:17.410 in diabetes or in in cardiology,

NOTE Confidence: 0.93421556

00:48:17.410 --> 00:48:19.930 if you are trying to develop a new procedure,

NOTE Confidence: 0.93421556

00:48:19.930 --> 00:48:23.032 you need to match the reference standard and

NOTE Confidence: 0.93421556

00:48:23.032 --> 00:48:25.710 in this case the AIDOS is gold standard.

NOTE Confidence: 0.93421556

00:48:25.710 --> 00:48:27.285 One thing that we never,

NOTE Confidence: 0.93421556

00:48:27.290 --> 00:48:29.595 we never discusses the fact that the

NOTE Confidence: 0.93421556

00:48:29.595 --> 00:48:31.450 AIDOS was never approved by the FDA.

NOTE Confidence: 0.93421556

00:48:31.450 --> 00:48:33.400 You understand that the sensitivity

NOTE Confidence: 0.93421556

00:48:33.400 --> 00:48:35.350 and specificity of the AIDOS.

NOTE Confidence: 0.93421556

00:48:35.350 --> 00:48:37.660 Was actually calculated by by

NOTE Confidence: 0.93421556

00:48:37.660 --> 00:48:39.970 basically looking at the concordance

NOTE Confidence: 0.93421556

00:48:40.040 --> 00:48:42.348 between the clinician's diagnosis

NOTE Confidence: 0.93421556

00:48:42.350 --> 00:48:44.541 and the ADAS when the clinician used

NOTE Confidence: 0.93421556

00:48:44.541 --> 00:48:46.788 the ADAS to make the diagnosis.

NOTE Confidence: 0.93421556

00:48:46.790 --> 00:48:48.678 So I know it's a that's one thing

NOTE Confidence: 0.93421556

00:48:48.678 --> 00:48:50.307 that's that you need to consider.

NOTE Confidence: 0.93421556

00:48:50.310 --> 00:48:53.526 And the second thing is that the ADAS

NOTE Confidence: 0.93421556

00:48:53.526 --> 00:48:57.470 is not perfect and so there is error

NOTE Confidence: 0.93421556

00:48:57.470 --> 00:48:59.336 measurement actually that it's quite,

NOTE Confidence: 0.93421556

00:48:59.336 --> 00:49:02.224 it's quite a bit and yet FDA

NOTE Confidence: 0.93421556

00:49:02.224 --> 00:49:03.898 disregards this entirely.

NOTE Confidence: 0.93421556

00:49:03.900 --> 00:49:05.620 ADOS is the gold standard.

NOTE Confidence: 0.93421556

00:49:05.620 --> 00:49:08.416 You better get close to it.

NOTE Confidence: 0.93421556

00:49:08.420 --> 00:49:10.748 The the funny part and Kasha would be

NOTE Confidence: 0.93421556

00:49:10.748 --> 00:49:13.394 able to speak that to that more eloquently

NOTE Confidence: 0.93421556

00:49:13.394 --> 00:49:17.460 than I in our national clinical trial.

NOTE Confidence: 0.93421556

00:49:17.460 --> 00:49:20.800 You understand that 29.5%

NOTE Confidence: 0.93421556

00:49:20.800 --> 00:49:22.900 of all of our sample.

NOTE Confidence: 0.93421556

00:49:22.900 --> 00:49:25.777 Remember this was a very complicated sample.

NOTE Confidence: 0.93421556

00:49:25.780 --> 00:49:28.538 These are not kids with without diagnosis.

NOTE Confidence: 0.93421556

00:49:28.540 --> 00:49:30.700 They have autism or non autistic

NOTE Confidence: 0.93421556

00:49:30.700 --> 00:49:32.570 developmental delays of all kinds.

NOTE Confidence: 0.93421556

00:49:32.570 --> 00:49:34.238 29.5% of the cases.

NOTE Confidence: 0.93421556

00:49:34.238 --> 00:49:35.970 The clinicians from UCSF,

NOTE Confidence: 0.93421556

00:49:35.970 --> 00:49:37.410 from Seattle Children's,

NOTE Confidence: 0.93421556

00:49:37.410 --> 00:49:38.872 Cincinnati Children's, Rush,

NOTE Confidence: 0.93421556

00:49:38.872 --> 00:49:42.888 Emory and and and and and Phoenix had

NOTE Confidence: 0.93421556

00:49:42.890 --> 00:49:45.570 suboptimal confidence in their diagnosis.

NOTE Confidence: 0.93421556

00:49:45.570 --> 00:49:48.244 These are 16 to 30 month oldest.

NOTE Confidence: 0.93421556

00:49:48.250 --> 00:49:50.876 FDA says OK, no,

NOTE Confidence: 0.93421556

00:49:50.876 --> 00:49:53.410 it should be 100% you should.

NOTE Confidence: 0.93421556

00:49:53.410 --> 00:49:56.050 You basically they assume the truth,

NOTE Confidence: 0.93421556

00:49:56.050 --> 00:49:58.045 but the ground truth in our field.

NOTE Confidence: 0.93421556

00:49:58.050 --> 00:49:59.940 I mean this is a behaviorally

NOTE Confidence: 0.93421556

00:49:59.940 --> 00:50:01.998 defined condition, so you have to.

NOTE Confidence: 0.93421556

00:50:01.998 --> 00:50:03.426 Deal with those imperfections.

NOTE Confidence: 0.93421556

00:50:03.430 --> 00:50:05.830 But absolutely I my heart is

NOTE Confidence: 0.93421556

00:50:05.830 --> 00:50:07.430 goes of your statements,

NOTE Confidence: 0.93421556

00:50:07.430 --> 00:50:10.870 but if you want to get it cleared by FDA,

NOTE Confidence: 0.93421556

00:50:10.870 --> 00:50:12.710 they wouldn't listen to what you just said.

NOTE Confidence: 0.94025373

00:50:17.470 --> 00:50:17.630 Adam.

NOTE Confidence: 0.72090999

00:50:19.790 --> 00:50:20.390 Hey Yami, that

NOTE Confidence: 0.9452854

00:50:20.390 --> 00:50:23.630 was amazing as always.

NOTE Confidence: 0.9452854

00:50:23.630 --> 00:50:24.394 A lot of questions,

NOTE Confidence: 0.9452854

00:50:24.394 --> 00:50:25.349 but I'll stick with one,

NOTE Confidence: 0.9452854

00:50:25.350 --> 00:50:27.390 like very concrete.

NOTE Confidence: 0.9452854

00:50:27.390 --> 00:50:30.006 Can you talk a little bit about the

NOTE Confidence: 0.9452854

00:50:30.006 --> 00:50:31.668 curation process for the videos,

NOTE Confidence: 0.9452854

00:50:31.670 --> 00:50:34.270 for the standardized test,

NOTE Confidence: 0.854872173333333

00:50:34.270 --> 00:50:36.790 the video stimuli? Yeah, But how

NOTE Confidence: 0.944278902

00:50:36.790 --> 00:50:38.270 you selected which ones and

NOTE Confidence: 0.944278902

00:50:38.270 --> 00:50:39.750 what you were looking for?

NOTE Confidence: 0.94528524

00:50:39.990 --> 00:50:45.030 Well, we had several generations of videos.

NOTE Confidence: 0.94528524

00:50:45.030 --> 00:50:46.050 I remembered that,

NOTE Confidence: 0.94528524

00:50:46.050 --> 00:50:48.928 sort of the one that we used in

NOTE Confidence: 0.94528524

00:50:48.928 --> 00:50:51.038 all of our experimental studies.

NOTE Confidence: 0.94528524

00:50:51.040 --> 00:50:53.208 The behavior, genetic studies,

NOTE Confidence: 0.94528524

00:50:53.208 --> 00:50:54.834 the early developments,

NOTE Confidence: 0.94528524

00:50:54.840 --> 00:50:56.916 they they were either caregivers and

NOTE Confidence: 0.94528524

00:50:56.916 --> 00:50:59.626 we remember sort of a lot of actresses

NOTE Confidence: 0.94528524

00:50:59.626 --> 00:51:01.516 coming to the child study center

NOTE Confidence: 0.94528524

00:51:01.520 --> 00:51:03.614 sometimes from Calvin Hill that you

NOTE Confidence: 0.94528524

00:51:03.614 --> 00:51:06.240 come here and they record our videos.

NOTE Confidence: 0.94528524

00:51:06.240 --> 00:51:11.560 The toddlers came from a preschool actually

NOTE Confidence: 0.94528524

00:51:11.560 --> 00:51:14.486 an after school program at Guilford Guilford,

NOTE Confidence: 0.94528524

00:51:14.486 --> 00:51:15.538 Guilford Green.

NOTE Confidence: 0.94528524

00:51:15.538 --> 00:51:19.220 You probably remember that family as well.

NOTE Confidence: 0.94528524

00:51:19.220 --> 00:51:20.592 They came from that,

NOTE Confidence: 0.94528524

00:51:20.592 --> 00:51:22.650 but subsequently we became to enrich

NOTE Confidence: 0.94528524

00:51:22.718 --> 00:51:25.873 those particularly in terms of Guilford

NOTE Confidence: 0.94528524

00:51:25.873 --> 00:51:28.175 is not very diverse and so we needed

NOTE Confidence: 0.94528524

00:51:28.175 --> 00:51:29.750 a little more of diversity in our

NOTE Confidence: 0.94528524

00:51:29.803 --> 00:51:31.417 videos and things of that nature.

NOTE Confidence: 0.94528524

00:51:31.420 --> 00:51:34.129 But the funny part and if this is what

NOTE Confidence: 0.94528524

00:51:34.129 --> 00:51:36.774 you're driving at is that we have a very,

NOTE Confidence: 0.94528524

00:51:36.780 --> 00:51:39.699 very large program in our center focus

NOTE Confidence: 0.94528524

00:51:39.699 --> 00:51:42.419 entirely on the Latino population,

NOTE Confidence: 0.94528524

00:51:42.420 --> 00:51:44.370 particularly non non-english

NOTE Confidence: 0.94528524

00:51:44.370 --> 00:51:46.970 speaking children and families.

NOTE Confidence: 0.94528524

00:51:46.970 --> 00:51:49.175 And we also have large grants focused

NOTE Confidence: 0.94528524

00:51:49.175 --> 00:51:50.730 entirely on African Americans.

NOTE Confidence: 0.94528524

00:51:50.730 --> 00:51:52.450 I remember Atlanta is 40%,

NOTE Confidence: 0.94528524

00:51:52.450 --> 00:51:54.562 forty, 7% African American.

NOTE Confidence: 0.94528524

00:51:54.562 --> 00:51:58.690 So we we have the only NIH genetic

NOTE Confidence: 0.94528524

00:51:58.690 --> 00:52:00.610 grant genetics grants focused

NOTE Confidence: 0.94528524

00:52:00.610 --> 00:52:02.530 entirely on African Americans.

NOTE Confidence: 0.94528524

00:52:02.530 --> 00:52:05.390 And what we're finding out is that,

NOTE Confidence: 0.94528524

00:52:05.390 --> 00:52:06.370 number one,

NOTE Confidence: 0.94528524

00:52:06.370 --> 00:52:09.310 those essays are not biased by

NOTE Confidence: 0.94528524

00:52:09.408 --> 00:52:11.849 either language or race, ethnicity.

NOTE Confidence: 0.94528524

00:52:11.849 --> 00:52:14.180 And I think the idea is that

NOTE Confidence: 0.94528524

00:52:14.251 --> 00:52:16.676 probably we're tapping into assays.

NOTE Confidence: 0.94528524

00:52:16.680 --> 00:52:18.486 That the language that in the

NOTE Confidence: 0.94528524

00:52:18.486 --> 00:52:20.360 stimuli are not very important,

NOTE Confidence: 0.94528524

00:52:20.360 --> 00:52:21.715 that are things that are

NOTE Confidence: 0.94528524

00:52:21.715 --> 00:52:22.799 a little more universal,

NOTE Confidence: 0.94528524

00:52:22.800 --> 00:52:23.852 but that's absolutely something

NOTE Confidence: 0.94528524

00:52:23.852 --> 00:52:25.600 that we're going to be working on.

NOTE Confidence: 0.94528524

00:52:25.600 --> 00:52:27.360 Were there also like certain

NOTE Confidence: 0.940253726666667

00:52:28.280 --> 00:52:31.604 kinds of sorry, were there also like

NOTE Confidence: 0.940253726666667

00:52:31.604 --> 00:52:33.059 specific kinds of social interactions

NOTE Confidence: 0.940253726666667

00:52:33.059 --> 00:52:36.480 that you're hoping to capture?

NOTE Confidence: 0.935222

00:52:37.360 --> 00:52:40.160 To be truthful, no.

NOTE Confidence: 0.935222

00:52:40.160 --> 00:52:43.196 We started by basically filming children.

NOTE Confidence: 0.935222

00:52:43.200 --> 00:52:44.772 Well, we have caregivers.

NOTE Confidence: 0.935222

00:52:44.772 --> 00:52:46.344 Directed infant directed speech,

NOTE Confidence: 0.935222

00:52:46.350 --> 00:52:48.300 we have a whole program of

NOTE Confidence: 0.935222

00:52:48.300 --> 00:52:50.116 research focused on live.

NOTE Confidence: 0.935222

00:52:50.116 --> 00:52:52.448 Live tracking for example

NOTE Confidence: 0.935222

00:52:52.448 --> 00:52:54.780 is bidirectional tracking is

NOTE Confidence: 0.935222

00:52:54.880 --> 00:52:58.028 caregiver infant interaction live.

NOTE Confidence: 0.935222

00:52:58.030 --> 00:52:59.986 And so that's live of course,

NOTE Confidence: 0.935222

00:52:59.990 --> 00:53:02.888 but in terms of the videotapes that we use.

NOTE Confidence: 0.935222

00:53:02.890 --> 00:53:06.740 They were basically trying to get as

NOTE Confidence: 0.935222

00:53:06.740 --> 00:53:11.134 varied as varied as sampling of of

NOTE Confidence: 0.935222

00:53:11.134 --> 00:53:13.289 toddler interactions as we could.

NOTE Confidence: 0.935222

00:53:13.290 --> 00:53:14.615 It has to be developmentally

NOTE Confidence: 0.935222

00:53:14.615 --> 00:53:15.410 appropriate of course.

NOTE Confidence: 0.935222

00:53:15.410 --> 00:53:17.774 But what I remember one thing

NOTE Confidence: 0.935222

00:53:17.774 --> 00:53:20.027 that I think Kyle once said we

NOTE Confidence: 0.935222

00:53:20.027 --> 00:53:21.546 were sort of being trained on the

NOTE Confidence: 0.935222

00:53:21.546 --> 00:53:23.088 on the Gazelle schedules and it

NOTE Confidence: 0.935222

00:53:23.088 --> 00:53:24.970 was like gosh this looks so much,

NOTE Confidence: 0.935222

00:53:24.970 --> 00:53:26.824 you know that how interactive the

NOTE Confidence: 0.935222

00:53:26.824 --> 00:53:28.597 psychologist he looks so much like

NOTE Confidence: 0.935222

00:53:28.597 --> 00:53:30.517 this test and that test and I think

NOTE Confidence: 0.935222

00:53:30.570 --> 00:53:32.170 you said something the effect.

NOTE Confidence: 0.935222

00:53:32.170 --> 00:53:33.355 Yeah, come on.

NOTE Confidence: 0.935222

00:53:33.355 --> 00:53:35.725 Toddlers don't do that much right?

NOTE Confidence: 0.935222

00:53:35.730 --> 00:53:37.130 So you're going to have a lot

NOTE Confidence: 0.935222

00:53:37.130 --> 00:53:37.530 of commonalities.

NOTE Confidence: 0.935222

00:53:37.530 --> 00:53:40.170 We try to grab as much as possible with that.

NOTE Confidence: 0.944726222222222

00:53:41.290 --> 00:53:42.115 Doctor Pruitt thinks

NOTE Confidence: 0.944726222222222

00:53:42.115 --> 00:53:43.765 toddlers do as much or more

NOTE Confidence: 0.9805072

00:53:46.690 --> 00:53:48.369 toddlers. They're the best.

NOTE Confidence: 0.9805072

00:53:48.370 --> 00:53:49.130 It's the last time.

NOTE Confidence: 0.9402536

00:53:49.130 --> 00:53:51.965 The mind and body are good friends.

NOTE Confidence: 0.9402536

00:53:51.970 --> 00:53:54.898 That's why we love them so much.

NOTE Confidence: 0.9402536

00:53:54.900 --> 00:53:56.418 After that, the mind takes over

NOTE Confidence: 0.9402536

00:53:56.418 --> 00:53:58.700 and it's downhill forever.

NOTE Confidence: 0.914765035384616

00:53:58.700 --> 00:54:00.583 And we cannot free ourselves from our

NOTE Confidence: 0.914765035384616

00:54:00.583 --> 00:54:02.500 mind the rest of our lives. Kyle,

NOTE Confidence: 0.75139549

00:54:02.980 --> 00:54:04.978 I ami you.

NOTE Confidence: 0.9402535

00:54:07.220 --> 00:54:08.492 I've been I've been wondering

NOTE Confidence: 0.9402535

00:54:08.492 --> 00:54:10.260 for years how we let you go.

NOTE Confidence: 0.93162772

00:54:10.260 --> 00:54:11.856 Now I realize why you had to,

NOTE Confidence: 0.93162772

00:54:11.860 --> 00:54:13.378 so that you could do this.

NOTE Confidence: 0.93162772

00:54:13.380 --> 00:54:16.005 And this is such an amazing gift

NOTE Confidence: 0.93162772

00:54:16.005 --> 00:54:18.830 to clinicians particularly.

NOTE Confidence: 0.93162772

00:54:18.830 --> 00:54:20.570 The burden that you lift from

NOTE Confidence: 0.93162772

00:54:20.570 --> 00:54:22.603 Pediatrics to say so many parents

NOTE Confidence: 0.93162772

00:54:22.603 --> 00:54:24.227 worried about their children,

NOTE Confidence: 0.93162772

00:54:24.230 --> 00:54:25.049 there's something off.

NOTE Confidence: 0.93162772

00:54:25.049 --> 00:54:26.683 What is it? Are they autistic?

NOTE Confidence: 0.93162772

00:54:26.683 --> 00:54:28.692 To be able to say no liberates

NOTE Confidence: 0.93162772

00:54:28.692 --> 00:54:30.984 both the physician and the family

NOTE Confidence: 0.93162772

00:54:30.990 --> 00:54:32.634 and lets them get on their path

NOTE Confidence: 0.93162772

00:54:32.634 --> 00:54:33.889 so the pediatrician can pay

NOTE Confidence: 0.93162772

00:54:33.889 --> 00:54:35.186 attention to the ones that need.

NOTE Confidence: 0.93162772

00:54:35.190 --> 00:54:37.270 It's it's an amazing gift.

NOTE Confidence: 0.93162772

00:54:37.270 --> 00:54:39.776 I'm struck by one of the small little

NOTE Confidence: 0.93162772

00:54:39.776 --> 00:54:42.110 quotes in your side that said you

NOTE Confidence: 0.93162772

00:54:42.110 --> 00:54:44.537 know that these these children create

NOTE Confidence: 0.93162772

00:54:44.537 --> 00:54:47.618 their own experience and to the parents.

NOTE Confidence: 0.93162772

00:54:47.618 --> 00:54:50.530 They're not part of it and that's

NOTE Confidence: 0.93162772

00:54:50.530 --> 00:54:52.990 a very bitter pill to swallow,

NOTE Confidence: 0.93162772

00:54:52.990 --> 00:54:54.870 to treat it as a trait and to

NOTE Confidence: 0.93162772

00:54:54.870 --> 00:54:56.907 say we can help you with that,

NOTE Confidence: 0.93162772

00:54:56.910 --> 00:55:00.102 let's get started and let's get started

NOTE Confidence: 0.93162772

00:55:00.102 --> 00:55:03.430 together is such an immensely repairing,

NOTE Confidence: 0.93162772

00:55:03.430 --> 00:55:04.963 phenomenal interpersonal experience

NOTE Confidence: 0.93162772

00:55:04.963 --> 00:55:08.029 between the clinician and a parent,

NOTE Confidence: 0.93162772

00:55:08.030 --> 00:55:11.734 as opposed to waiting for 3-4 five years.

NOTE Confidence: 0.93162772

00:55:11.734 --> 00:55:13.990 The kid you know explodes

NOTE Confidence: 0.93162772

00:55:13.990 --> 00:55:15.311 kindergarten and say, wow,

NOTE Confidence: 0.93162772

00:55:15.311 --> 00:55:16.394 there's something really

NOTE Confidence: 0.93162772

00:55:16.394 --> 00:55:17.838 wrong with this child.

NOTE Confidence: 0.93162772

00:55:17.840 --> 00:55:19.424 To have eliminated,

NOTE Confidence: 0.93162772

00:55:19.424 --> 00:55:20.480 you know,

NOTE Confidence: 0.93162772

00:55:20.480 --> 00:55:23.100 hundreds of thousands of negative

NOTE Confidence: 0.93162772

00:55:23.100 --> 00:55:25.890 experiences from ever happening with

NOTE Confidence: 0.93162772

00:55:25.890 --> 00:55:29.440 your wonderful toy is quite a gift.

NOTE Confidence: 0.93162772

00:55:29.440 --> 00:55:31.520 And it's not just exciting,

NOTE Confidence: 0.93162772

00:55:31.520 --> 00:55:33.320 it's a real game changer.

NOTE Confidence: 0.93162772

00:55:33.320 --> 00:55:35.184 And I'm thinking of the institutions

NOTE Confidence: 0.93162772

00:55:35.184 --> 00:55:37.140 that need to know about this

NOTE Confidence: 0.93162772

00:55:37.204 --> 00:55:39.393 yesterday so that it can wind up in

NOTE Confidence: 0.93162772

00:55:39.393 --> 00:55:41.691 the hands of people in the country,

NOTE Confidence: 0.93162772

00:55:41.691 --> 00:55:43.953 and I mean in the country.

NOTE Confidence: 0.93162772

00:55:43.960 --> 00:55:47.326 Wi-Fi access remains in the issue.

NOTE Confidence: 0.93162772

00:55:47.330 --> 00:55:48.644 They'll have to get busy with

NOTE Confidence: 0.93162772

00:55:48.644 --> 00:55:49.690 their legislators to get it.

NOTE Confidence: 0.93162772

00:55:49.690 --> 00:55:52.826 But this is worth the this is

NOTE Confidence: 0.93162772

00:55:52.826 --> 00:55:55.730 worth the candle. And I thank you.

NOTE Confidence: 0.93162772

00:55:55.730 --> 00:55:57.546 And I remember Sally saying,

NOTE Confidence: 0.93162772

00:55:57.546 --> 00:55:59.730 we we do not understand autism.

NOTE Confidence: 0.93162772

00:55:59.730 --> 00:56:01.150 It starts so early.

NOTE Confidence: 0.93162772

00:56:01.150 --> 00:56:03.280 We are completely at the wrong

NOTE Confidence: 0.93162772

00:56:03.353 --> 00:56:05.192 end of this dog. We have start.

NOTE Confidence: 0.93162772

00:56:05.192 --> 00:56:07.130 We have to start working with the head,

NOTE Confidence: 0.93162772

00:56:07.130 --> 00:56:09.209 not the tail. And you did that.

NOTE Confidence: 0.93162772

00:56:09.210 --> 00:56:09.530 Thank you.

NOTE Confidence: 0.93162772

00:56:09.850 --> 00:56:11.490 Kyle.

NOTE Confidence: 0.927445636363636

00:56:11.490 --> 00:56:13.810 I must say this. I know I am in New Haven.

NOTE Confidence: 0.927445636363636

00:56:13.810 --> 00:56:17.300 I know that I yell when I receive an e-mail.

NOTE Confidence: 0.927445636363636

00:56:17.300 --> 00:56:18.852 From a former patient

NOTE Confidence: 0.927445636363636

00:56:18.852 --> 00:56:21.180 whom I saw for 15 years,

NOTE Confidence: 0.927445636363636

00:56:21.180 --> 00:56:24.974 every Tuesday that person was first seen.

NOTE Confidence: 0.927445636363636

00:56:24.980 --> 00:56:26.936 He's my age. He was served.

00:56:26.940 --> 00:56:30.428 First seen at the Health Child Study Center

00:56:30.428 --> 00:56:34.613 at the age of 20 months by Sally and by Sam.

00:56:34.620 --> 00:56:36.700 And then Donald was involved.

00:56:36.700 --> 00:56:38.896 I assume Jim must have involved.

00:56:38.900 --> 00:56:40.937 I don't know if Bob was involved.

00:56:40.940 --> 00:56:43.628 Eventually he ended up with me.

00:56:43.630 --> 00:56:48.612 And he wrote to me the most heart warming.

00:56:48.612 --> 00:56:53.038 I I'm talking about Tom and

00:56:53.038 --> 00:56:54.510 what a distinguished family.

00:56:54.510 --> 00:56:57.108 Yale family. But my goodness me.

00:56:57.110 --> 00:56:59.665 But what I'm saying here is this.

00:56:59.670 --> 00:57:01.830 This is just a toy.

00:57:01.830 --> 00:57:04.060 The concepts.

00:57:04.060 --> 00:57:05.540 The concepts came from you.

00:57:05.540 --> 00:57:07.740 It came from Linda, it came from Jim,

00:57:07.740 --> 00:57:09.820 it came from Donald, it came from Fred.

NOTE Confidence: 0.927445636363636

00:57:09.820 --> 00:57:13.892 And I mean this center to me is

NOTE Confidence: 0.927445636363636

00:57:13.892 --> 00:57:17.845 really a monument to the impact

NOTE Confidence: 0.927445636363636

00:57:17.845 --> 00:57:20.820 of relationships in one's life.

NOTE Confidence: 0.927445636363636

00:57:20.820 --> 00:57:22.796 When, when, when, when?

NOTE Confidence: 0.927445636363636

00:57:22.796 --> 00:57:25.266 My my good friend Dr.

NOTE Confidence: 0.927445636363636

00:57:25.270 --> 00:57:27.310 Martin was editing that book.

NOTE Confidence: 0.927445636363636

00:57:27.310 --> 00:57:29.370 That book, Donald's book,

NOTE Confidence: 0.927445636363636

00:57:29.370 --> 00:57:31.430 was all about relationships,

NOTE Confidence: 0.927445636363636

00:57:31.430 --> 00:57:33.506 life being a correct collection thereof,

NOTE Confidence: 0.927445636363636

00:57:33.510 --> 00:57:35.720 to my mind, Brain is.

NOTE Confidence: 0.927445636363636

00:57:35.720 --> 00:57:36.150 Exactly.

NOTE Confidence: 0.927445636363636

00:57:36.150 --> 00:57:37.870 That is the instantiation

NOTE Confidence: 0.927445636363636

00:57:37.870 --> 00:57:39.160 of those experiences.

NOTE Confidence: 0.927445636363636

00:57:39.160 --> 00:57:41.386 But let me speak just very briefly

NOTE Confidence: 0.927445636363636

00:57:41.386 --> 00:57:43.558 substantively to one thing that you said,

00:57:43.560 --> 00:57:45.715 yes, they are creating that

00:57:45.715 --> 00:57:47.439 experience and their parents,

00:57:47.440 --> 00:57:49.210 their children were born with an

00:57:49.210 --> 00:57:50.760 attenuated sense of the other.

00:57:50.760 --> 00:57:53.076 So the parents are not what

00:57:53.076 --> 00:57:54.234 they are cocreating.

00:57:54.240 --> 00:57:55.539 Having said that,

00:57:55.539 --> 00:57:58.137 we can engineer that environment to

00:57:58.137 --> 00:58:01.200 empower families so that we can strengthen

00:58:01.200 --> 00:58:05.760 them mutuality that that that sense of of.

00:58:05.760 --> 00:58:08.104 Typical connection and and

00:58:08.104 --> 00:58:10.032 and and and engagement.

00:58:10.032 --> 00:58:13.040 But here is what we found out because

00:58:13.111 --> 00:58:15.236 you work with that population,

00:58:15.240 --> 00:58:18.397 you know with teen moms and very,

00:58:18.400 --> 00:58:18.915 very,

NOTE Confidence: 0.927445636363636

00:58:18.915 --> 00:58:19.430 very,

NOTE Confidence: 0.927445636363636

00:58:19.430 --> 00:58:22.005 very low income mothers were

NOTE Confidence: 0.927445636363636

00:58:22.005 --> 00:58:23.035 extraordinarily fragile.

NOTE Confidence: 0.927445636363636

00:58:23.040 --> 00:58:25.080 They leaving situations of stress and

NOTE Confidence: 0.927445636363636

00:58:25.080 --> 00:58:27.686 gales when you are telling them that's

NOTE Confidence: 0.927445636363636

00:58:27.686 --> 00:58:30.038 something that they can't actually do,

NOTE Confidence: 0.927445636363636

00:58:30.040 --> 00:58:33.370 meaning they can engage that baby.

NOTE Confidence: 0.927445636363636

00:58:33.370 --> 00:58:36.350 And that engagement will promote

NOTE Confidence: 0.927445636363636

00:58:36.350 --> 00:58:39.330 optimal development in that child.

NOTE Confidence: 0.927445636363636

00:58:39.330 --> 00:58:40.802 The sense of empowerment

NOTE Confidence: 0.927445636363636

00:58:40.802 --> 00:58:42.642 that one conveys is huge.

NOTE Confidence: 0.927445636363636

00:58:42.650 --> 00:58:46.690 So nothing that I said today is new

NOTE Confidence: 0.927445636363636

00:58:46.690 --> 00:58:49.049 because it came from all of you.

NOTE Confidence: 0.927445636363636

00:58:49.050 --> 00:58:49.370 Thank you.

NOTE Confidence: 0.936228182

00:58:50.250 --> 00:58:51.210 Is that the final word?

NOTE Confidence: 0.936228182

00:58:51.210 --> 00:58:52.530 That's such a beautiful final word,

NOTE Confidence: 0.936228182

00:58:52.530 --> 00:58:54.490 but there may be a final, final word.

NOTE Confidence: 0.936228182

00:58:54.490 --> 00:58:55.888 There's two questions.

NOTE Confidence: 0.936228182

00:58:55.890 --> 00:58:58.165 There's more questions that I think we're,

NOTE Confidence: 0.936228182

00:58:58.170 --> 00:58:59.640 I think we're going to be

NOTE Confidence: 0.936228182

00:58:59.640 --> 00:59:01.120 respectful of your time and ever.

NOTE Confidence: 0.936228182

00:59:01.120 --> 00:59:03.080 And I mean you know your your

NOTE Confidence: 0.936228182

00:59:03.080 --> 00:59:04.920 love note to to the center.

NOTE Confidence: 0.936228182

00:59:04.920 --> 00:59:06.756 We feel it and we send it back and

NOTE Confidence: 0.936228182

00:59:06.756 --> 00:59:08.636 come back again and again and again.

NOTE Confidence: 0.936228182

00:59:08.640 --> 00:59:09.080 Thank you.

NOTE Confidence: 0.9402536

00:59:09.880 --> 00:59:11.000 Thank you very much.