

WEBVTT

NOTE duration: "01:01:06.304"

NOTE Confidence: 0.921875

00:00:04.240 --> 00:00:06.080 Today, we have, we are

NOTE Confidence: 0.921875

00:00:06.080 --> 00:00:07.279 very happy to have Doctor.

NOTE Confidence: 0.921875

00:00:07.279 --> 00:00:08.100 Ziva Cooper

NOTE Confidence: 0.9638894

00:00:08.720 --> 00:00:10.719 with us. Doctor. Cooper is

NOTE Confidence: 0.9638894

00:00:10.719 --> 00:00:12.400 a professor and vice chair

NOTE Confidence: 0.9638894

00:00:12.400 --> 00:00:14.253 of research in in the

NOTE Confidence: 0.9638894

00:00:14.253 --> 00:00:16.325 department of psychiatry and behavioral

NOTE Confidence: 0.9638894

00:00:16.325 --> 00:00:18.396 sciences at the David Giffen

NOTE Confidence: 0.9638894

00:00:18.396 --> 00:00:20.468 School of Medicine. She also

NOTE Confidence: 0.9638894

00:00:20.468 --> 00:00:22.539 serves as the director of

NOTE Confidence: 0.9638894

00:00:22.539 --> 00:00:24.611 the UCLA Center for Cannabis

NOTE Confidence: 0.9638894

00:00:24.611 --> 00:00:26.420 and Cannabinoids, a cross disciplinary

NOTE Confidence: 0.9248047

00:00:26.880 --> 00:00:28.660 hub for research and education

NOTE Confidence: 0.7086588

00:00:29.360 --> 00:00:30.340 spanning preclinical,

NOTE Confidence: 0.91967773

00:00:30.960 --> 00:00:33.360 clinical, public health and policy
NOTE Confidence: 0.91967773
00:00:33.360 --> 00:00:33.860 domains.
NOTE Confidence: 0.9426432
00:00:34.560 --> 00:00:36.720 Doctor. Cooper received, received her
NOTE Confidence: 0.9426432
00:00:36.720 --> 00:00:39.375 BS in biopsychology and anthropology
NOTE Confidence: 0.9426432
00:00:39.434 --> 00:00:41.135 and her PhD in psychology
NOTE Confidence: 0.8152669
00:00:41.754 --> 00:00:43.215 with a specialization
NOTE Confidence: 0.9986572
00:00:43.595 --> 00:00:44.335 in biopsychology
NOTE Confidence: 0.9952148
00:00:44.795 --> 00:00:46.335 from the University of Michigan.
NOTE Confidence: 0.93359375
00:00:47.034 --> 00:00:48.715 She then completed post doctoral
NOTE Confidence: 0.93359375
00:00:48.715 --> 00:00:49.215 training
NOTE Confidence: 0.9836426
00:00:49.690 --> 00:00:50.750 in human behavioral,
NOTE Confidence: 0.9995117
00:00:51.610 --> 00:00:52.110 pharmacology
NOTE Confidence: 0.9941406
00:00:52.489 --> 00:00:53.710 at Columbia University
NOTE Confidence: 0.9683431
00:00:54.250 --> 00:00:55.610 and the New York State
NOTE Confidence: 0.9683431
00:00:55.610 --> 00:00:56.110 Psychiatric
NOTE Confidence: 0.99560547
00:00:56.649 --> 00:00:57.149 Institute.

NOTE Confidence: 0.9161784
00:00:57.690 --> 00:00:59.550 Her research her research program
NOTE Confidence: 0.9161784
00:00:59.769 --> 00:01:02.110 integrates controlled human drug administration
NOTE Confidence: 0.9161784
00:01:02.410 --> 00:01:03.629 studies, observational
NOTE Confidence: 0.953125
00:01:04.175 --> 00:01:05.235 designs, and preclinical
NOTE Confidence: 0.99731445
00:01:05.535 --> 00:01:07.075 models to better understand
NOTE Confidence: 0.96565247
00:01:07.694 --> 00:01:09.635 the therapeutic and adverse effects
NOTE Confidence: 0.96565247
00:01:09.935 --> 00:01:12.334 for, psychoactive substances with a
NOTE Confidence: 0.96565247
00:01:12.334 --> 00:01:14.175 particular focus on cannabis and
NOTE Confidence: 0.96565247
00:01:14.175 --> 00:01:14.675 cannabinoids,
NOTE Confidence: 0.97821045
00:01:15.455 --> 00:01:16.995 opioids, and their intersection.
NOTE Confidence: 0.9681866
00:01:17.930 --> 00:01:19.310 Her work has been continuously
NOTE Confidence: 0.9681866
00:01:19.610 --> 00:01:20.970 funded by the NIH and
NOTE Confidence: 0.9681866
00:01:20.970 --> 00:01:21.790 the state agencies
NOTE Confidence: 0.9475911
00:01:22.090 --> 00:01:23.069 and has contributed
NOTE Confidence: 0.9951172
00:01:23.370 --> 00:01:25.050 to key advances in sex
NOTE Confidence: 0.9951172

00:01:25.050 --> 00:01:25.550 dependent,
NOTE Confidence: 0.9838867

00:01:26.250 --> 00:01:26.750 pharmacology,
NOTE Confidence: 0.9914551

00:01:27.290 --> 00:01:29.130 public health policy, and the
NOTE Confidence: 0.9914551

00:01:29.130 --> 00:01:30.830 science of substance use disorders.
NOTE Confidence: 0.9336914

00:01:31.405 --> 00:01:32.765 She has also served on
NOTE Confidence: 0.9336914

00:01:32.765 --> 00:01:35.025 multiple committees for National Academies
NOTE Confidence: 0.9336914

00:01:35.165 --> 00:01:37.185 of Sciences, Engineering, and Medicine,
NOTE Confidence: 0.9445357

00:01:37.725 --> 00:01:39.084 focused on the health effects
NOTE Confidence: 0.9445357

00:01:39.084 --> 00:01:40.685 and public health implications of
NOTE Confidence: 0.9445357

00:01:40.685 --> 00:01:41.185 cannabis,
NOTE Confidence: 0.9667218

00:01:41.645 --> 00:01:42.765 and is the and is
NOTE Confidence: 0.9667218

00:01:42.765 --> 00:01:44.465 the past president of International
NOTE Confidence: 0.9667218

00:01:44.605 --> 00:01:46.065 Cannabis Research Society.
NOTE Confidence: 0.992997

00:01:46.970 --> 00:01:48.650 Through her leadership and research,
NOTE Confidence: 0.992997

00:01:48.650 --> 00:01:50.090 Doctor. Cooper has played a
NOTE Confidence: 0.992997

00:01:50.090 --> 00:01:51.530 central role in shaping the

NOTE Confidence: 0.992997
00:01:51.530 --> 00:01:53.550 scientific understanding of cannabis
NOTE Confidence: 0.98746747
00:01:53.930 --> 00:01:56.250 and informing evidence based clinical
NOTE Confidence: 0.98746747
00:01:56.250 --> 00:01:57.850 practice and policy in a
NOTE Confidence: 0.98746747
00:01:57.850 --> 00:01:58.910 rapidly evolving
NOTE Confidence: 0.9995117
00:01:59.290 --> 00:01:59.790 landscape.
NOTE Confidence: 0.8584508
00:02:00.885 --> 00:02:02.244 Today, she will present her
NOTE Confidence: 0.8584508
00:02:02.244 --> 00:02:04.725 work titled Potential THC Sparing
NOTE Confidence: 0.8584508
00:02:04.725 --> 00:02:06.265 Effects of Minor Investigation
NOTE Confidence: 0.91221786
00:02:07.924 --> 00:02:09.465 of CBG, Analgesia
NOTE Confidence: 0.8394612
00:02:09.764 --> 00:02:12.405 and Appetite Stimulating Effects Alone
NOTE Confidence: 0.8394612
00:02:12.405 --> 00:02:14.105 and in Combination with THC.
NOTE Confidence: 0.9699707
00:02:14.919 --> 00:02:16.599 Please join me in welcoming
NOTE Confidence: 0.9699707
00:02:16.599 --> 00:02:17.980 doctor Ziva Cooper.
NOTE Confidence: 0.9995117
00:02:19.079 --> 00:02:20.379 Thank you so much.
NOTE Confidence: 0.99958146
00:02:20.760 --> 00:02:21.879 It's so nice to see
NOTE Confidence: 0.99958146

00:02:21.879 --> 00:02:22.540 the names,
NOTE Confidence: 0.99375
00:02:23.000 --> 00:02:24.200 on the Zoom screen. I
NOTE Confidence: 0.99375
00:02:24.200 --> 00:02:25.500 feel like even though we're
NOTE Confidence: 0.97835284
00:02:25.879 --> 00:02:27.239 hundreds of miles apart, I
NOTE Confidence: 0.97835284
00:02:27.400 --> 00:02:28.919 you know, surrounded by friends.
NOTE Confidence: 0.97835284
00:02:28.919 --> 00:02:29.500 I just
NOTE Confidence: 0.97999334
00:02:29.895 --> 00:02:31.335 wish that we could, all
NOTE Confidence: 0.97999334
00:02:31.335 --> 00:02:32.855 be together in person, but
NOTE Confidence: 0.97999334
00:02:32.855 --> 00:02:34.555 Zoom is an amazing invention.
NOTE Confidence: 0.97999334
00:02:34.775 --> 00:02:36.395 So so that's good.
NOTE Confidence: 0.99934894
00:02:37.255 --> 00:02:38.375 Great. So I'll go ahead
NOTE Confidence: 0.99934894
00:02:38.375 --> 00:02:39.595 and share my slides.
NOTE Confidence: 0.93928224
00:02:41.815 --> 00:02:42.900 I know that kinda goes
NOTE Confidence: 0.93928224
00:02:42.900 --> 00:02:44.360 without saying at this point,
NOTE Confidence: 0.955522
00:02:44.660 --> 00:02:45.700 but, yeah, we feel a
NOTE Confidence: 0.955522
00:02:45.700 --> 00:02:47.620 need to say it. Let's

NOTE Confidence: 0.955522
00:02:47.620 --> 00:02:48.120 see.
NOTE Confidence: 0.99902344
00:02:52.419 --> 00:02:52.919 Okay.
NOTE Confidence: 0.8803711
00:02:54.465 --> 00:02:54.965 So,
NOTE Confidence: 0.9861886
00:02:55.585 --> 00:02:57.105 hopefully, everybody can see the
NOTE Confidence: 0.9861886
00:02:57.105 --> 00:02:59.105 slides. And, yes, I am
NOTE Confidence: 0.9861886
00:02:59.105 --> 00:03:00.485 more than happy to
NOTE Confidence: 0.99158657
00:03:01.105 --> 00:03:02.465 pause at any point if
NOTE Confidence: 0.99158657
00:03:02.465 --> 00:03:03.825 there's a if there's a
NOTE Confidence: 0.99158657
00:03:03.825 --> 00:03:04.805 number of questions.
NOTE Confidence: 0.96643066
00:03:06.300 --> 00:03:08.000 I generally like discussion
NOTE Confidence: 0.99780273
00:03:08.300 --> 00:03:09.919 more than just speaking
NOTE Confidence: 0.8843384
00:03:10.860 --> 00:03:12.139 to myself on a on
NOTE Confidence: 0.8843384
00:03:12.139 --> 00:03:13.980 a Zoom box, so I
NOTE Confidence: 0.8843384
00:03:13.980 --> 00:03:15.200 definitely welcome,
NOTE Confidence: 0.9953613
00:03:16.220 --> 00:03:17.120 welcome questions.
NOTE Confidence: 0.9744779

00:03:17.819 --> 00:03:19.760 So first, I'd like to
NOTE Confidence: 0.9744779

00:03:19.900 --> 00:03:21.775 just point out that my
NOTE Confidence: 0.9744779

00:03:21.775 --> 00:03:23.235 research support is,
NOTE Confidence: 0.96051896

00:03:25.055 --> 00:03:26.334 comes from the NIH, and
NOTE Confidence: 0.96051896

00:03:26.334 --> 00:03:26.995 I'm extraordinarily,
NOTE Confidence: 0.9737956

00:03:28.334 --> 00:03:30.094 appreciative of that as well
NOTE Confidence: 0.9737956

00:03:30.094 --> 00:03:30.594 as
NOTE Confidence: 0.9470825

00:03:31.055 --> 00:03:33.075 different, California state agencies.
NOTE Confidence: 0.9892015

00:03:33.454 --> 00:03:35.220 And the project I'll talk
NOTE Confidence: 0.9892015

00:03:35.300 --> 00:03:36.980 specifically about today was funded
NOTE Confidence: 0.9892015

00:03:36.980 --> 00:03:38.360 by the CMCR,
NOTE Confidence: 0.9416097

00:03:38.740 --> 00:03:40.420 their Center for Medicinal Cannabis
NOTE Confidence: 0.9416097

00:03:40.420 --> 00:03:40.920 Research,
NOTE Confidence: 1

00:03:41.380 --> 00:03:43.320 which is in California
NOTE Confidence: 0.875

00:03:43.860 --> 00:03:44.360 and
NOTE Confidence: 0.96850586

00:03:44.900 --> 00:03:46.260 was part of the bill

NOTE Confidence: 0.96850586
00:03:46.260 --> 00:03:46.760 that,
NOTE Confidence: 0.9987793
00:03:48.020 --> 00:03:49.705 was passed when California
NOTE Confidence: 0.973999
00:03:50.085 --> 00:03:51.525 decided to legalize cannabis for
NOTE Confidence: 0.973999
00:03:51.525 --> 00:03:52.885 medical purposes back in ninety
NOTE Confidence: 0.973999
00:03:52.885 --> 00:03:54.185 nine nineteen ninety six.
NOTE Confidence: 0.9987793
00:03:54.565 --> 00:03:56.185 They put aside money
NOTE Confidence: 0.9855957
00:03:56.485 --> 00:03:58.105 to actually research,
NOTE Confidence: 0.9859096
00:03:59.205 --> 00:04:00.885 cannabis and cannabinoids. And at
NOTE Confidence: 0.9859096
00:04:00.885 --> 00:04:02.105 that time, you know, NIH
NOTE Confidence: 0.9859096
00:04:02.165 --> 00:04:03.525 wasn't really putting much money
NOTE Confidence: 0.9859096
00:04:03.525 --> 00:04:05.260 into this area, And so
NOTE Confidence: 0.9859096
00:04:05.260 --> 00:04:06.459 it really spurred a lot
NOTE Confidence: 0.9859096
00:04:06.459 --> 00:04:07.680 of important work.
NOTE Confidence: 0.99609375
00:04:08.140 --> 00:04:08.640 And
NOTE Confidence: 0.9697673
00:04:08.940 --> 00:04:10.060 as you know, our the
NOTE Confidence: 0.9697673

00:04:10.060 --> 00:04:11.260 work is still not done
NOTE Confidence: 0.9697673

00:04:11.260 --> 00:04:12.459 as as we can see
NOTE Confidence: 0.9697673

00:04:12.459 --> 00:04:14.400 from all the newsreels from,
NOTE Confidence: 0.9583062

00:04:15.340 --> 00:04:16.940 Thursday, was it, when the
NOTE Confidence: 0.9583062

00:04:16.940 --> 00:04:18.639 big announcement happened with marijuana
NOTE Confidence: 0.9583062

00:04:18.779 --> 00:04:20.805 moving to schedule three, whatever
NOTE Confidence: 0.9583062

00:04:20.805 --> 00:04:21.625 that will mean.
NOTE Confidence: 0.9800692

00:04:22.165 --> 00:04:23.205 And I also wanna point
NOTE Confidence: 0.9800692

00:04:23.205 --> 00:04:24.885 out that this work, is
NOTE Confidence: 0.9800692

00:04:24.885 --> 00:04:25.385 clinical,
NOTE Confidence: 0.9988281

00:04:25.845 --> 00:04:28.265 and so it requires a
NOTE Confidence: 0.9650879

00:04:28.725 --> 00:04:30.105 number of approvals,
NOTE Confidence: 0.9520479

00:04:30.885 --> 00:04:32.245 approvals that many of you
NOTE Confidence: 0.9520479

00:04:32.245 --> 00:04:33.285 have to get for your
NOTE Confidence: 0.9520479

00:04:33.285 --> 00:04:35.509 clinical research for the IRB,
NOTE Confidence: 0.9520479

00:04:35.509 --> 00:04:36.169 the FDA,

NOTE Confidence: 0.8787372
00:04:36.630 --> 00:04:37.770 as well as the DEA
NOTE Confidence: 0.8787372
00:04:37.830 --> 00:04:38.949 because I work with sub
NOTE Confidence: 0.8787372
00:04:39.190 --> 00:04:40.330 schedule one substances.
NOTE Confidence: 0.99853516
00:04:40.870 --> 00:04:42.310 And in California, we have
NOTE Confidence: 0.99853516
00:04:42.310 --> 00:04:43.210 a very special
NOTE Confidence: 0.86831665
00:04:43.669 --> 00:04:45.529 organization called RAP C.
NOTE Confidence: 0.95717365
00:04:45.910 --> 00:04:46.949 It used to actually have
NOTE Confidence: 0.95717365
00:04:46.949 --> 00:04:48.069 the c in front of
NOTE Confidence: 0.95717365
00:04:48.069 --> 00:04:48.729 the wrap.
NOTE Confidence: 0.9743845
00:04:49.964 --> 00:04:51.805 And it is probably the
NOTE Confidence: 0.9743845
00:04:51.964 --> 00:04:53.085 one of the more difficult
NOTE Confidence: 0.9743845
00:04:53.085 --> 00:04:54.945 hurdles with respect to regulatory
NOTE Confidence: 0.9743845
00:04:55.165 --> 00:04:57.005 approvals. They have to review
NOTE Confidence: 0.9743845
00:04:57.005 --> 00:04:58.925 all preclinical and clinical research
NOTE Confidence: 0.9743845
00:04:58.925 --> 00:05:00.045 that involve schedule one and
NOTE Confidence: 0.9743845

00:05:00.045 --> 00:05:01.325 schedule two substances in the
NOTE Confidence: 0.9743845

00:05:01.325 --> 00:05:02.145 state of California.
NOTE Confidence: 0.9852658

00:05:02.685 --> 00:05:03.485 So even though you would
NOTE Confidence: 0.9852658

00:05:03.485 --> 00:05:04.845 think that California would be
NOTE Confidence: 0.9852658

00:05:04.845 --> 00:05:06.760 this burgeoning place for research
NOTE Confidence: 0.9852658

00:05:06.760 --> 00:05:07.960 where research would be much
NOTE Confidence: 0.9852658

00:05:07.960 --> 00:05:09.580 easier with cannabis and cannabinoids
NOTE Confidence: 0.9852658

00:05:09.800 --> 00:05:10.920 because of its legal history,
NOTE Confidence: 0.9852658

00:05:10.920 --> 00:05:12.520 it's actually it is quite
NOTE Confidence: 0.9852658

00:05:12.520 --> 00:05:13.260 hard here.
NOTE Confidence: 0.9472878

00:05:15.160 --> 00:05:16.920 So this isn't news. Although,
NOTE Confidence: 0.9472878

00:05:16.920 --> 00:05:18.200 I guess, this this changed
NOTE Confidence: 0.9472878

00:05:18.200 --> 00:05:18.700 dramatically,
NOTE Confidence: 0.9482311

00:05:19.080 --> 00:05:20.325 I think. Who knows really
NOTE Confidence: 0.9482311

00:05:20.325 --> 00:05:22.025 what the implications are? But
NOTE Confidence: 0.9482311

00:05:22.245 --> 00:05:23.605 as of last week, circa

NOTE Confidence: 0.9482311
00:05:23.605 --> 00:05:25.205 twenty twenty six to twenty
NOTE Confidence: 0.9482311
00:05:25.205 --> 00:05:26.025 twenty five,
NOTE Confidence: 0.9534912
00:05:26.485 --> 00:05:27.125 there were,
NOTE Confidence: 0.9339803
00:05:28.165 --> 00:05:30.085 forty states, including Washington, DC,
NOTE Confidence: 0.9339803
00:05:30.085 --> 00:05:31.685 that legalized cannabis for medical
NOTE Confidence: 0.9339803
00:05:31.685 --> 00:05:32.745 purposes, and,
NOTE Confidence: 0.9916241
00:05:33.400 --> 00:05:35.820 twenty five of those, legalized
NOTE Confidence: 0.9916241
00:05:35.880 --> 00:05:37.960 cannabis for nonmedical purposes. So
NOTE Confidence: 0.9916241
00:05:37.960 --> 00:05:39.020 for adult use,
NOTE Confidence: 0.9968872
00:05:39.800 --> 00:05:41.660 we know that, cannabidiol
NOTE Confidence: 0.99853516
00:05:42.120 --> 00:05:42.860 is federally
NOTE Confidence: 0.9511719
00:05:43.480 --> 00:05:45.320 legal as a hemp plant,
NOTE Confidence: 0.9511719
00:05:45.320 --> 00:05:46.540 or I should say,
NOTE Confidence: 0.93413085
00:05:48.285 --> 00:05:49.885 hemp is is federally legal,
NOTE Confidence: 0.93413085
00:05:49.885 --> 00:05:51.505 and so many states have
NOTE Confidence: 0.9855957

00:05:52.365 --> 00:05:54.845 legal provisions, regulations to allow

NOTE Confidence: 0.9855957

00:05:54.845 --> 00:05:55.345 for,

NOTE Confidence: 0.9922389

00:05:55.805 --> 00:05:57.325 cannabis with CBD in it.

NOTE Confidence: 0.9922389

00:05:57.325 --> 00:05:58.045 And then there are four

NOTE Confidence: 0.9922389

00:05:58.045 --> 00:05:59.245 states that don't really have

NOTE Confidence: 0.9922389

00:05:59.245 --> 00:06:00.785 any regulations at all.

NOTE Confidence: 0.96759903

00:06:01.430 --> 00:06:03.189 Now, again, this this is

NOTE Confidence: 0.96759903

00:06:03.189 --> 00:06:03.930 all changing.

NOTE Confidence: 0.93359375

00:06:04.389 --> 00:06:05.830 States where cannabis is legal

NOTE Confidence: 0.93359375

00:06:05.830 --> 00:06:07.289 twenty twenty five, of course.

NOTE Confidence: 0.88952637

00:06:07.669 --> 00:06:09.210 I guess cannabis is

NOTE Confidence: 0.9763907

00:06:09.669 --> 00:06:11.830 federally it is federally illegal.

NOTE Confidence: 0.9763907

00:06:11.830 --> 00:06:13.529 There's this question about medical

NOTE Confidence: 0.9763907

00:06:13.669 --> 00:06:15.495 marijuana now being schedule three,

NOTE Confidence: 0.9763907

00:06:15.495 --> 00:06:16.455 although we're going to see

NOTE Confidence: 0.9763907

00:06:16.455 --> 00:06:18.214 how that's implemented and and

NOTE Confidence: 0.9763907

00:06:18.214 --> 00:06:18.955 rolled out.

NOTE Confidence: 0.99653065

00:06:19.495 --> 00:06:21.495 But this doesn't change the

NOTE Confidence: 0.99653065

00:06:21.495 --> 00:06:23.414 fact that each state has

NOTE Confidence: 0.99653065

00:06:23.414 --> 00:06:25.014 different laws and different products.

NOTE Confidence: 0.99653065

00:06:25.014 --> 00:06:26.634 I don't we don't

NOTE Confidence: 0.9712345

00:06:27.029 --> 00:06:29.190 foresee that necessarily changing anytime

NOTE Confidence: 0.9712345

00:06:29.190 --> 00:06:30.870 in the immediate future. And,

NOTE Confidence: 0.9712345

00:06:30.870 --> 00:06:32.630 importantly, even with the change,

NOTE Confidence: 0.9712345

00:06:32.630 --> 00:06:34.710 there isn't any unifying body

NOTE Confidence: 0.9712345

00:06:34.710 --> 00:06:36.310 that's regulating the production and

NOTE Confidence: 0.9712345

00:06:36.310 --> 00:06:37.589 sales of these products. So

NOTE Confidence: 0.9712345

00:06:37.589 --> 00:06:38.550 even with the move to

NOTE Confidence: 0.9712345

00:06:38.550 --> 00:06:39.714 schedule three, it's not clear

NOTE Confidence: 0.9712345

00:06:39.714 --> 00:06:40.995 that the FDA necessarily is

NOTE Confidence: 0.9712345

00:06:40.995 --> 00:06:42.755 gonna be playing a role

NOTE Confidence: 0.9712345

00:06:42.755 --> 00:06:43.255 in
NOTE Confidence: 0.9956787
00:06:43.875 --> 00:06:45.714 overseeing or guiding the states
NOTE Confidence: 0.9956787
00:06:45.714 --> 00:06:47.255 on how to regulate this.
NOTE Confidence: 0.989624
00:06:47.955 --> 00:06:48.914 And so that has led
NOTE Confidence: 0.989624
00:06:48.914 --> 00:06:50.115 to a number of public
NOTE Confidence: 0.989624
00:06:50.115 --> 00:06:50.854 health implications
NOTE Confidence: 0.979716
00:06:51.154 --> 00:06:52.960 and questions with respect to
NOTE Confidence: 0.979716
00:06:52.960 --> 00:06:54.480 how to protect the public,
NOTE Confidence: 0.979716
00:06:54.480 --> 00:06:55.140 the consumers,
NOTE Confidence: 0.99126875
00:06:55.839 --> 00:06:57.120 when there's such a diverse
NOTE Confidence: 0.99126875
00:06:57.120 --> 00:06:58.960 market with very little oversight.
NOTE Confidence: 0.99126875
00:06:58.960 --> 00:06:59.839 And it's really up to
NOTE Confidence: 0.99126875
00:06:59.839 --> 00:07:00.800 the states at this point,
NOTE Confidence: 0.99126875
00:07:00.800 --> 00:07:02.000 and I think it's a
NOTE Confidence: 0.99126875
00:07:02.000 --> 00:07:03.279 pretty big job for for
NOTE Confidence: 0.99126875
00:07:03.279 --> 00:07:04.080 the state to be able

NOTE Confidence: 0.99126875

00:07:04.080 --> 00:07:04.980 to handle this.

NOTE Confidence: 0.9891968

00:07:05.505 --> 00:07:06.625 So there are those changes.

NOTE Confidence: 0.9891968

00:07:06.625 --> 00:07:08.625 And alongside with, you know,

NOTE Confidence: 0.9891968

00:07:08.625 --> 00:07:10.785 cannabis legalization across the United

NOTE Confidence: 0.9891968

00:07:10.785 --> 00:07:11.285 States,

NOTE Confidence: 0.9996745

00:07:11.585 --> 00:07:12.725 we've seen increases

NOTE Confidence: 0.9473511

00:07:13.185 --> 00:07:15.505 in cannabis strengths defined as

NOTE Confidence: 0.9473511

00:07:15.505 --> 00:07:17.585 percent THC over the decades.

NOTE Confidence: 0.9473511

00:07:17.585 --> 00:07:19.230 So this is a graph

NOTE Confidence: 0.9473511

00:07:19.230 --> 00:07:20.850 from the Drug Enforcement Administration,

NOTE Confidence: 0.98976934

00:07:21.230 --> 00:07:22.510 cannabis that was seized from

NOTE Confidence: 0.98976934

00:07:22.510 --> 00:07:24.270 unregulated sources over the last

NOTE Confidence: 0.98976934

00:07:24.270 --> 00:07:25.310 several decades. And you can

NOTE Confidence: 0.98976934

00:07:25.310 --> 00:07:27.310 see that THC concentration increased

NOTE Confidence: 0.98976934

00:07:27.310 --> 00:07:27.810 dramatically

NOTE Confidence: 0.9782284

00:07:28.350 --> 00:07:29.390 over the twenty years from
NOTE Confidence: 0.9782284

00:07:29.390 --> 00:07:30.350 nineteen ninety five to two
NOTE Confidence: 0.9782284

00:07:30.350 --> 00:07:32.030 thousand thirteen, and it continued
NOTE Confidence: 0.9782284

00:07:32.030 --> 00:07:32.770 to increase.
NOTE Confidence: 0.9953342

00:07:33.544 --> 00:07:34.425 Now keep in mind, of
NOTE Confidence: 0.9953342

00:07:34.425 --> 00:07:35.565 course, those are unregulated
NOTE Confidence: 0.9797585

00:07:36.105 --> 00:07:37.705 cannabis sources. When you go
NOTE Confidence: 0.9797585

00:07:37.705 --> 00:07:39.305 to dispensaries, and I see
NOTE Confidence: 0.9797585

00:07:39.305 --> 00:07:39.805 some,
NOTE Confidence: 0.9332733

00:07:40.905 --> 00:07:42.665 Washington State colleagues here, when
NOTE Confidence: 0.9332733

00:07:42.665 --> 00:07:44.025 you go to dispensaries in
NOTE Confidence: 0.9332733

00:07:44.025 --> 00:07:45.385 Washington State as well as
NOTE Confidence: 0.9332733

00:07:45.385 --> 00:07:45.885 California,
NOTE Confidence: 0.9571708

00:07:47.610 --> 00:07:48.570 and New York for my
NOTE Confidence: 0.9571708

00:07:48.570 --> 00:07:49.310 East Coasters
NOTE Confidence: 0.8641968

00:07:50.090 --> 00:07:51.210 on the on the,

NOTE Confidence: 0.9220378
00:07:52.009 --> 00:07:52.509 webinar,
NOTE Confidence: 0.99714005
00:07:53.050 --> 00:07:54.169 what you see is something
NOTE Confidence: 0.99714005
00:07:54.169 --> 00:07:54.910 very different.
NOTE Confidence: 0.96725214
00:07:55.370 --> 00:07:56.410 What you see is that
NOTE Confidence: 0.96725214
00:07:56.410 --> 00:07:57.770 it's very difficult to get
NOTE Confidence: 0.96725214
00:07:57.770 --> 00:07:59.370 cannabis with lower than t
NOTE Confidence: 0.96725214
00:07:59.370 --> 00:08:00.965 h lower than twenty percent
NOTE Confidence: 0.96725214
00:08:00.965 --> 00:08:02.405 THC. And, of course, there
NOTE Confidence: 0.96725214
00:08:02.405 --> 00:08:03.285 are a number of products
NOTE Confidence: 0.96725214
00:08:03.285 --> 00:08:04.565 that are super high in
NOTE Confidence: 0.96725214
00:08:04.565 --> 00:08:05.705 THC concentration,
NOTE Confidence: 0.9564073
00:08:06.405 --> 00:08:07.705 dabs, wax, shatter,
NOTE Confidence: 0.9962158
00:08:08.485 --> 00:08:10.005 that can be almost a
NOTE Confidence: 0.9962158
00:08:10.005 --> 00:08:11.225 hundred percent THC.
NOTE Confidence: 0.9733665
00:08:11.810 --> 00:08:12.850 And so we're seeing an
NOTE Confidence: 0.9733665

00:08:12.850 --> 00:08:14.930 emerging trend with rising increases

NOTE Confidence: 0.9733665

00:08:14.930 --> 00:08:16.530 concentrations of THC in these

NOTE Confidence: 0.9733665

00:08:16.530 --> 00:08:18.130 types of products. We know

NOTE Confidence: 0.9733665

00:08:18.130 --> 00:08:19.030 that cannabidiol,

NOTE Confidence: 0.96209717

00:08:19.410 --> 00:08:20.950 there's interest in other cannabinoids

NOTE Confidence: 0.96209717

00:08:21.090 --> 00:08:22.370 other than THC in the

NOTE Confidence: 0.96209717

00:08:22.370 --> 00:08:23.350 cannabis plant.

NOTE Confidence: 0.99869794

00:08:23.730 --> 00:08:24.790 We see cannabidiol

NOTE Confidence: 0.91988117

00:08:25.170 --> 00:08:27.350 infused athletic wear, hummus,

NOTE Confidence: 0.8955078

00:08:28.824 --> 00:08:29.324 pillowcases

NOTE Confidence: 0.9305556

00:08:29.865 --> 00:08:32.285 that promises a relaxation relaxing

NOTE Confidence: 0.9305556

00:08:32.345 --> 00:08:33.565 night of sleep, tinctures,

NOTE Confidence: 0.97753906

00:08:34.585 --> 00:08:35.085 capsules.

NOTE Confidence: 0.9726214

00:08:35.785 --> 00:08:36.985 And then we're starting to

NOTE Confidence: 0.9726214

00:08:36.985 --> 00:08:39.165 see this burgeoning interest in,

NOTE Confidence: 0.9726214

00:08:39.385 --> 00:08:40.445 you know, other minor

NOTE Confidence: 0.90976745
00:08:40.830 --> 00:08:43.630 cannabinoids, CBG, CBN, CBX, Y,
NOTE Confidence: 0.90976745
00:08:43.630 --> 00:08:45.390 Z that can be purchased
NOTE Confidence: 0.90976745
00:08:45.390 --> 00:08:46.990 across a range of of
NOTE Confidence: 0.90976745
00:08:46.990 --> 00:08:47.970 modes of administration.
NOTE Confidence: 0.9289363
00:08:49.309 --> 00:08:50.430 You know, I sometimes say
NOTE Confidence: 0.9289363
00:08:50.430 --> 00:08:52.190 that CBD is, like, so
NOTE Confidence: 0.9289363
00:08:52.190 --> 00:08:53.250 two thousand nineteen,
NOTE Confidence: 0.93939817
00:08:53.675 --> 00:08:54.634 What's gonna be the next
NOTE Confidence: 0.93939817
00:08:54.634 --> 00:08:55.675 one? I mean, CVG and
NOTE Confidence: 0.93939817
00:08:55.675 --> 00:08:57.675 CBN are also also almost
NOTE Confidence: 0.93939817
00:08:57.675 --> 00:08:59.134 coming passe at this point.
NOTE Confidence: 0.9535702
00:08:59.915 --> 00:09:01.115 So although we we don't
NOTE Confidence: 0.9535702
00:09:01.115 --> 00:09:02.074 know that much about it,
NOTE Confidence: 0.9535702
00:09:02.074 --> 00:09:03.694 but, you know, the industry
NOTE Confidence: 0.9535702
00:09:03.915 --> 00:09:04.735 is quite,
NOTE Confidence: 0.77856445

00:09:05.514 --> 00:09:06.014 entrepreneurial.
NOTE Confidence: 0.9946289

00:09:06.954 --> 00:09:07.774 And so
NOTE Confidence: 0.9885254

00:09:08.130 --> 00:09:09.170 there is a great deal
NOTE Confidence: 0.9885254

00:09:09.170 --> 00:09:11.170 of interest, from consumers as
NOTE Confidence: 0.9885254

00:09:11.170 --> 00:09:12.150 well as the industry
NOTE Confidence: 0.9614563

00:09:12.690 --> 00:09:14.210 in the other cannabinoids in
NOTE Confidence: 0.9614563

00:09:14.210 --> 00:09:15.350 the cannabis plant,
NOTE Confidence: 0.9949443

00:09:15.970 --> 00:09:17.250 as well as terpenes, which
NOTE Confidence: 0.9949443

00:09:17.250 --> 00:09:18.210 are not unique to the
NOTE Confidence: 0.9949443

00:09:18.210 --> 00:09:19.270 cannabis plant.
NOTE Confidence: 0.93952286

00:09:19.809 --> 00:09:21.010 And it's thought that these
NOTE Confidence: 0.93952286

00:09:21.010 --> 00:09:22.530 terpenes that are exist in
NOTE Confidence: 0.93952286

00:09:22.530 --> 00:09:24.684 fruits, vegetables, herbs, spices
NOTE Confidence: 0.96414185

00:09:25.144 --> 00:09:26.665 may also contribute to the
NOTE Confidence: 0.96414185

00:09:26.665 --> 00:09:27.725 effects of cannabis.
NOTE Confidence: 0.97614133

00:09:28.105 --> 00:09:29.324 And so you can see

NOTE Confidence: 0.97614133

00:09:29.385 --> 00:09:30.105 that there are a lot

NOTE Confidence: 0.97614133

00:09:30.105 --> 00:09:31.464 of different products available in

NOTE Confidence: 0.97614133

00:09:31.464 --> 00:09:33.385 dispensaries that really capitalize on

NOTE Confidence: 0.97614133

00:09:33.385 --> 00:09:35.464 terpenes either to improve the

NOTE Confidence: 0.97614133

00:09:35.464 --> 00:09:37.144 flavor or change the flavor

NOTE Confidence: 0.97614133

00:09:37.144 --> 00:09:38.365 of the cannabis product.

NOTE Confidence: 0.9406738

00:09:38.840 --> 00:09:39.500 But, also,

NOTE Confidence: 0.9942738

00:09:40.760 --> 00:09:41.800 a lot of these products

NOTE Confidence: 0.9942738

00:09:41.800 --> 00:09:43.240 suggest that it has certain

NOTE Confidence: 0.9942738

00:09:43.240 --> 00:09:44.679 types of medical benefits and

NOTE Confidence: 0.9942738

00:09:44.679 --> 00:09:45.800 symptom relief. So we have

NOTE Confidence: 0.9942738

00:09:45.800 --> 00:09:46.920 different products, and we also

NOTE Confidence: 0.9942738

00:09:46.920 --> 00:09:48.520 know that patterns of use

NOTE Confidence: 0.9942738

00:09:48.520 --> 00:09:49.420 have changed dramatically.

NOTE Confidence: 0.97547853

00:09:49.720 --> 00:09:51.400 I mean, you know, if

NOTE Confidence: 0.97547853

00:09:51.400 --> 00:09:52.840 you've gone to a cannabis
NOTE Confidence: 0.97547853

00:09:52.840 --> 00:09:53.925 lecture in the last year,
NOTE Confidence: 0.97547853

00:09:53.925 --> 00:09:55.865 you've definitely seen this slide
NOTE Confidence: 0.97547853

00:09:56.085 --> 00:09:58.184 where now daily cannabis use,
NOTE Confidence: 0.99108887

00:09:58.965 --> 00:10:01.365 outpaces daily alcohol use. This
NOTE Confidence: 0.99108887

00:10:01.365 --> 00:10:02.505 happened really quickly,
NOTE Confidence: 0.97753906

00:10:02.885 --> 00:10:03.845 if you can see over
NOTE Confidence: 0.97753906

00:10:03.845 --> 00:10:05.705 the last, twenty years.
NOTE Confidence: 0.97509766

00:10:07.125 --> 00:10:07.625 And
NOTE Confidence: 0.9940561

00:10:08.259 --> 00:10:09.860 this trend has continued since
NOTE Confidence: 0.9940561

00:10:09.860 --> 00:10:11.620 twenty twenty four, when this
NOTE Confidence: 0.9940561

00:10:11.620 --> 00:10:13.139 paper was published. So we
NOTE Confidence: 0.9940561

00:10:13.139 --> 00:10:14.420 know people are using many
NOTE Confidence: 0.9940561

00:10:14.420 --> 00:10:16.019 different products. They're using quite
NOTE Confidence: 0.9940561

00:10:16.019 --> 00:10:16.519 frequently.
NOTE Confidence: 0.97571385

00:10:17.220 --> 00:10:18.179 And when you look at,

NOTE Confidence: 0.97571385
00:10:18.179 --> 00:10:20.259 you know, patterns of cannabis
NOTE Confidence: 0.97571385
00:10:20.259 --> 00:10:21.300 use in people who are
NOTE Confidence: 0.97571385
00:10:21.300 --> 00:10:23.300 using for nonmedical reasons, this
NOTE Confidence: 0.97571385
00:10:23.300 --> 00:10:23.800 is
NOTE Confidence: 0.9778276
00:10:24.235 --> 00:10:25.434 actually a figure that was
NOTE Confidence: 0.9778276
00:10:25.434 --> 00:10:26.635 adapted from a study in
NOTE Confidence: 0.9778276
00:10:26.635 --> 00:10:27.135 Canada,
NOTE Confidence: 0.9589386
00:10:27.755 --> 00:10:28.875 but it definitely applies to
NOTE Confidence: 0.9589386
00:10:28.875 --> 00:10:29.915 the United States, has been
NOTE Confidence: 0.9589386
00:10:29.915 --> 00:10:31.675 shown with other, more recent
NOTE Confidence: 0.9589386
00:10:31.675 --> 00:10:32.175 papers.
NOTE Confidence: 0.9992676
00:10:32.795 --> 00:10:34.015 When you ask people
NOTE Confidence: 0.98093826
00:10:34.554 --> 00:10:35.915 who've used cannabis in the
NOTE Confidence: 0.98093826
00:10:35.915 --> 00:10:37.515 last three months how often
NOTE Confidence: 0.98093826
00:10:37.515 --> 00:10:38.495 they're using it,
NOTE Confidence: 0.9796237

00:10:38.929 --> 00:10:40.309 People who use for nonmedical
NOTE Confidence: 0.9796237

00:10:40.370 --> 00:10:42.529 reasons overwhelmingly are using it,
NOTE Confidence: 0.9796237

00:10:42.529 --> 00:10:43.649 you know, less than one
NOTE Confidence: 0.9796237

00:10:43.649 --> 00:10:44.690 time a month, and, of
NOTE Confidence: 0.9796237

00:10:44.690 --> 00:10:45.889 course, people are using it
NOTE Confidence: 0.9796237

00:10:45.889 --> 00:10:46.389 daily.
NOTE Confidence: 0.95562065

00:10:47.170 --> 00:10:49.170 But in general, those people
NOTE Confidence: 0.95562065

00:10:49.170 --> 00:10:50.389 who are using for nonmedical
NOTE Confidence: 0.95562065

00:10:50.449 --> 00:10:52.455 reasons, it's not everybody who's
NOTE Confidence: 0.95562065

00:10:52.455 --> 00:10:53.675 using every day.
NOTE Confidence: 0.997206

00:10:54.054 --> 00:10:54.934 But when you ask people
NOTE Confidence: 0.997206

00:10:54.934 --> 00:10:56.054 who are using cannabis for
NOTE Confidence: 0.997206

00:10:56.054 --> 00:10:57.735 medical purposes, how often they
NOTE Confidence: 0.997206

00:10:57.735 --> 00:10:59.654 use it, we see that
NOTE Confidence: 0.997206

00:10:59.654 --> 00:11:01.735 the overwhelming majority are using
NOTE Confidence: 0.997206

00:11:01.735 --> 00:11:02.714 it daily.

NOTE Confidence: 0.976932
00:11:03.015 --> 00:11:04.295 And there's good reason for
NOTE Confidence: 0.976932
00:11:04.295 --> 00:11:05.654 that because if people are
NOTE Confidence: 0.976932
00:11:05.654 --> 00:11:07.870 using cannabis to help their
NOTE Confidence: 0.976932
00:11:07.870 --> 00:11:09.149 symptoms or ailments that they're
NOTE Confidence: 0.976932
00:11:09.149 --> 00:11:10.429 dealing with every single day,
NOTE Confidence: 0.976932
00:11:10.429 --> 00:11:11.309 well, then it makes sense
NOTE Confidence: 0.976932
00:11:11.309 --> 00:11:12.350 that they're using it every
NOTE Confidence: 0.976932
00:11:12.350 --> 00:11:13.089 single day
NOTE Confidence: 0.88539344
00:11:13.470 --> 00:11:15.470 and most likely multiple times
NOTE Confidence: 0.88539344
00:11:15.470 --> 00:11:16.129 a day.
NOTE Confidence: 0.97616297
00:11:16.429 --> 00:11:17.629 And when people are asked
NOTE Confidence: 0.97616297
00:11:17.629 --> 00:11:19.389 why they're using cannabis, of
NOTE Confidence: 0.97616297
00:11:19.389 --> 00:11:19.889 course,
NOTE Confidence: 0.98132324
00:11:20.429 --> 00:11:21.855 you see this all the
NOTE Confidence: 0.98132324
00:11:21.855 --> 00:11:24.175 time that pain, chronic pain,
NOTE Confidence: 0.98132324

00:11:24.175 --> 00:11:25.075 sleep, anxiety
NOTE Confidence: 0.9783691

00:11:25.695 --> 00:11:27.295 are the top reasons why
NOTE Confidence: 0.9783691

00:11:27.295 --> 00:11:29.075 people are using medical cannabis.
NOTE Confidence: 0.99647355

00:11:29.615 --> 00:11:30.655 And so if you think
NOTE Confidence: 0.99647355

00:11:30.655 --> 00:11:32.115 about the changing landscape,
NOTE Confidence: 0.99886066

00:11:32.895 --> 00:11:33.934 as I've shown you, we
NOTE Confidence: 0.99886066

00:11:33.934 --> 00:11:34.434 have
NOTE Confidence: 0.9641113

00:11:34.910 --> 00:11:36.030 all these states that have
NOTE Confidence: 0.9641113

00:11:36.030 --> 00:11:37.790 different regulations. And I know,
NOTE Confidence: 0.9825521

00:11:38.110 --> 00:11:39.309 the audience members who are
NOTE Confidence: 0.9825521

00:11:39.309 --> 00:11:40.429 in Canada, you have different
NOTE Confidence: 0.9825521

00:11:40.429 --> 00:11:42.130 provinces that have different regulations,
NOTE Confidence: 0.97683376

00:11:42.590 --> 00:11:44.270 drastically different regulations from one
NOTE Confidence: 0.97683376

00:11:44.270 --> 00:11:45.490 province to the next.
NOTE Confidence: 0.91674805

00:11:46.190 --> 00:11:47.010 But, generally,
NOTE Confidence: 0.8610026

00:11:47.390 --> 00:11:48.850 given increased legality,

NOTE Confidence: 0.9811013

00:11:50.395 --> 00:11:52.075 increased accessibility, we also have

NOTE Confidence: 0.9811013

00:11:52.075 --> 00:11:53.675 increased use of cannabis. And

NOTE Confidence: 0.9811013

00:11:53.675 --> 00:11:55.535 there's definitely been an expanding

NOTE Confidence: 0.9811013

00:11:55.595 --> 00:11:57.195 scientific interest and also public

NOTE Confidence: 0.9811013

00:11:57.195 --> 00:11:57.934 health urgency

NOTE Confidence: 0.9962935

00:11:58.475 --> 00:11:59.995 to understand what are the

NOTE Confidence: 0.9962935

00:11:59.995 --> 00:12:01.915 health outcomes of cannabis and

NOTE Confidence: 0.9962935

00:12:01.915 --> 00:12:02.415 cannabinoids.

NOTE Confidence: 0.9943182

00:12:03.750 --> 00:12:05.190 So when we think about

NOTE Confidence: 0.9943182

00:12:05.190 --> 00:12:07.110 the potential medicinal effects of

NOTE Confidence: 0.9943182

00:12:07.110 --> 00:12:07.610 cannabis,

NOTE Confidence: 0.97648925

00:12:08.150 --> 00:12:09.590 and here, this whole talk

NOTE Confidence: 0.97648925

00:12:09.590 --> 00:12:10.970 is about, you know, how

NOTE Confidence: 0.988678

00:12:11.910 --> 00:12:13.670 other cannabis constituents might have

NOTE Confidence: 0.988678

00:12:13.670 --> 00:12:15.130 THC sparing properties.

NOTE Confidence: 0.98944646

00:12:15.764 --> 00:12:16.884 So what are we trying
NOTE Confidence: 0.98944646

00:12:16.884 --> 00:12:18.644 to spare here? What are
NOTE Confidence: 0.98944646

00:12:18.644 --> 00:12:20.324 we trying to, what types
NOTE Confidence: 0.98944646

00:12:20.324 --> 00:12:21.285 of risks are we trying
NOTE Confidence: 0.98944646

00:12:21.285 --> 00:12:21.865 to mitigate?
NOTE Confidence: 0.99035645

00:12:22.404 --> 00:12:23.204 So we know that there
NOTE Confidence: 0.99035645

00:12:23.204 --> 00:12:24.725 are risks associated with cannabis
NOTE Confidence: 0.99035645

00:12:24.725 --> 00:12:25.684 use. We know that there
NOTE Confidence: 0.99035645

00:12:25.684 --> 00:12:27.570 are associations between cannabis use
NOTE Confidence: 0.99035645

00:12:27.570 --> 00:12:29.010 and mood disorders and other
NOTE Confidence: 0.99035645

00:12:29.010 --> 00:12:30.230 serious mental illness.
NOTE Confidence: 0.97377235

00:12:30.610 --> 00:12:31.570 We know that there's an
NOTE Confidence: 0.97377235

00:12:31.570 --> 00:12:33.809 association between cannabis use, especially
NOTE Confidence: 0.97377235

00:12:33.809 --> 00:12:35.330 early onset cannabis use and
NOTE Confidence: 0.97377235

00:12:35.330 --> 00:12:36.610 earlier age of onset of
NOTE Confidence: 0.97377235

00:12:36.610 --> 00:12:37.110 psychosis.

NOTE Confidence: 0.99017805
00:12:37.890 --> 00:12:38.850 We know that there's been
NOTE Confidence: 0.99017805
00:12:38.850 --> 00:12:40.390 an increase in cannabis related
NOTE Confidence: 0.99017805
00:12:40.450 --> 00:12:41.650 ED visits across,
NOTE Confidence: 0.99902344
00:12:42.515 --> 00:12:43.255 across demographic
NOTE Confidence: 0.9980469
00:12:43.635 --> 00:12:44.135 categories.
NOTE Confidence: 0.96898544
00:12:45.075 --> 00:12:45.875 We know that there are
NOTE Confidence: 0.96898544
00:12:45.875 --> 00:12:47.475 acute effects of cannabis. You
NOTE Confidence: 0.96898544
00:12:47.475 --> 00:12:48.515 know, we've known this, you
NOTE Confidence: 0.96898544
00:12:48.515 --> 00:12:49.715 know, since the beginning of
NOTE Confidence: 0.96898544
00:12:49.715 --> 00:12:51.155 time when people started using
NOTE Confidence: 0.96898544
00:12:51.155 --> 00:12:52.455 cannabis that cannabis
NOTE Confidence: 0.9667969
00:12:53.395 --> 00:12:53.895 can
NOTE Confidence: 0.8553874
00:12:54.275 --> 00:12:56.520 does induce intoxication and impairment.
NOTE Confidence: 0.8553874
00:12:56.520 --> 00:12:57.020 Of
NOTE Confidence: 0.8535156
00:12:57.480 --> 00:12:58.679 course, this depends on the
NOTE Confidence: 0.8535156

00:12:58.679 --> 00:13:00.059 person, the dose, the mode
NOTE Confidence: 0.86861616

00:13:00.360 --> 00:13:01.720 of administration. And we also
NOTE Confidence: 0.86861616

00:13:01.720 --> 00:13:02.920 know that cannabis use can
NOTE Confidence: 0.86861616

00:13:02.920 --> 00:13:04.960 cause cannabis use disorder in
NOTE Confidence: 0.86861616

00:13:04.960 --> 00:13:06.300 a subset of the population.
NOTE Confidence: 0.86861616

00:13:06.360 --> 00:13:07.320 We know that this isn't
NOTE Confidence: 0.86861616

00:13:07.320 --> 00:13:08.540 necessarily rare.
NOTE Confidence: 0.9951172

00:13:08.865 --> 00:13:10.385 It can exacerbate other existing
NOTE Confidence: 0.9951172

00:13:10.385 --> 00:13:11.825 mental illnesses, and there's no
NOTE Confidence: 0.9951172

00:13:11.825 --> 00:13:13.045 FDA approved therapy.
NOTE Confidence: 0.98853326

00:13:13.505 --> 00:13:14.464 And so today, when I
NOTE Confidence: 0.98853326

00:13:14.464 --> 00:13:15.825 talk about the adverse effects
NOTE Confidence: 0.98853326

00:13:15.825 --> 00:13:17.425 associated with THC and how
NOTE Confidence: 0.98853326

00:13:17.425 --> 00:13:19.024 CBG might interact with those
NOTE Confidence: 0.98853326

00:13:19.024 --> 00:13:21.184 adverse effects, I'm really focusing
NOTE Confidence: 0.98853326

00:13:21.184 --> 00:13:22.304 on some of these acute

NOTE Confidence: 0.98853326
00:13:22.304 --> 00:13:22.710 effects,
NOTE Confidence: 0.99816895
00:13:23.350 --> 00:13:24.630 because that's what we study
NOTE Confidence: 0.99816895
00:13:24.630 --> 00:13:25.530 in our laboratory.
NOTE Confidence: 0.9402495
00:13:26.630 --> 00:13:27.830 We know that cannabis use
NOTE Confidence: 0.9402495
00:13:27.830 --> 00:13:29.990 disorder is associated with withdrawal
NOTE Confidence: 0.9402495
00:13:29.990 --> 00:13:31.510 symptoms, so people have seen
NOTE Confidence: 0.9402495
00:13:31.510 --> 00:13:32.630 for a certain period of
NOTE Confidence: 0.9402495
00:13:32.630 --> 00:13:33.130 time.
NOTE Confidence: 0.99902344
00:13:33.510 --> 00:13:35.270 Many papers have shown this
NOTE Confidence: 0.99902344
00:13:35.270 --> 00:13:37.005 elegantly. I just have one
NOTE Confidence: 0.99902344
00:13:37.005 --> 00:13:38.145 paper here below,
NOTE Confidence: 0.97952706
00:13:38.684 --> 00:13:39.804 just because it was easy
NOTE Confidence: 0.97952706
00:13:39.804 --> 00:13:41.085 easy to reference for me,
NOTE Confidence: 0.97952706
00:13:41.085 --> 00:13:42.125 but I could fill this
NOTE Confidence: 0.97952706
00:13:42.125 --> 00:13:43.565 whole page up with, you
NOTE Confidence: 0.97952706

00:13:43.565 --> 00:13:44.925 know, references that are in,
NOTE Confidence: 0.97952706

00:13:45.325 --> 00:13:46.385 eight point font.
NOTE Confidence: 0.99009484

00:13:46.765 --> 00:13:48.225 We know that withdrawal symptoms
NOTE Confidence: 0.99009484

00:13:48.285 --> 00:13:49.585 actually mimic
NOTE Confidence: 0.9805353

00:13:50.199 --> 00:13:51.880 the symptoms that people are
NOTE Confidence: 0.9805353

00:13:51.880 --> 00:13:53.559 using cannabis for. So, for
NOTE Confidence: 0.9805353

00:13:53.559 --> 00:13:54.059 example,
NOTE Confidence: 0.9991455

00:13:54.600 --> 00:13:56.679 withdrawal is associated with increases
NOTE Confidence: 0.9991455

00:13:56.679 --> 00:13:57.980 in anxiety, irritability,
NOTE Confidence: 0.9994141

00:13:58.440 --> 00:14:00.779 physical symptoms, reductions in sleep,
NOTE Confidence: 0.99853516

00:14:01.399 --> 00:14:02.540 reductions in appetite.
NOTE Confidence: 1

00:14:02.875 --> 00:14:03.695 There's a hypothesis
NOTE Confidence: 0.98535156

00:14:04.555 --> 00:14:05.055 that,
NOTE Confidence: 0.99189454

00:14:05.595 --> 00:14:07.695 cannabis induced withdrawal might also
NOTE Confidence: 0.9594184

00:14:08.475 --> 00:14:10.395 increase sensitivity to pain, so
NOTE Confidence: 0.9594184

00:14:10.395 --> 00:14:11.455 kind of like hyperalgesia.

NOTE Confidence: 0.9885951
00:14:13.035 --> 00:14:14.075 And so, you know, there
NOTE Confidence: 0.9885951
00:14:14.075 --> 00:14:14.875 have been a couple of
NOTE Confidence: 0.9885951
00:14:14.875 --> 00:14:16.255 groups working on that.
NOTE Confidence: 0.9974476
00:14:16.670 --> 00:14:17.710 And so when we think
NOTE Confidence: 0.9974476
00:14:17.710 --> 00:14:19.810 about the popularity of cannabis
NOTE Confidence: 0.9974476
00:14:19.870 --> 00:14:20.370 use,
NOTE Confidence: 0.9980469
00:14:20.910 --> 00:14:21.650 right now,
NOTE Confidence: 0.9895996
00:14:22.590 --> 00:14:23.470 we know that there are
NOTE Confidence: 0.9895996
00:14:23.470 --> 00:14:24.910 risks. And so how do
NOTE Confidence: 0.9895996
00:14:24.910 --> 00:14:27.010 we address these risks amidst,
NOTE Confidence: 0.96854657
00:14:27.630 --> 00:14:29.630 increases in medical use? And,
NOTE Confidence: 0.96854657
00:14:29.630 --> 00:14:30.130 specifically,
NOTE Confidence: 0.9785919
00:14:30.915 --> 00:14:32.355 one of the primary reasons
NOTE Confidence: 0.9785919
00:14:32.355 --> 00:14:33.875 why people use medical cannabis,
NOTE Confidence: 0.9785919
00:14:33.875 --> 00:14:34.915 as I showed you before,
NOTE Confidence: 0.9785919

00:14:34.915 --> 00:14:36.195 was to help with chronic
NOTE Confidence: 0.9785919

00:14:36.195 --> 00:14:37.315 pain. And so we'll talk
NOTE Confidence: 0.9785919

00:14:37.315 --> 00:14:38.355 a bit a lot about
NOTE Confidence: 0.9785919

00:14:38.355 --> 00:14:39.095 that today.
NOTE Confidence: 0.95351565

00:14:39.555 --> 00:14:40.834 Chronic pain is given as
NOTE Confidence: 0.95351565

00:14:40.834 --> 00:14:42.295 a top reason for using,
NOTE Confidence: 0.97176844

00:14:42.755 --> 00:14:43.875 cannabis, and we know that
NOTE Confidence: 0.97176844

00:14:43.875 --> 00:14:45.255 in states that have legalized
NOTE Confidence: 0.97176844

00:14:45.475 --> 00:14:45.975 cannabis,
NOTE Confidence: 0.97420245

00:14:46.410 --> 00:14:47.389 for medical purposes,
NOTE Confidence: 0.975441

00:14:48.089 --> 00:14:49.529 thirty percent of people with
NOTE Confidence: 0.975441

00:14:49.529 --> 00:14:51.050 chronic pain use some type
NOTE Confidence: 0.975441

00:14:51.050 --> 00:14:52.250 of medical cannabis, or at
NOTE Confidence: 0.975441

00:14:52.250 --> 00:14:53.290 least that that was that's
NOTE Confidence: 0.975441

00:14:53.290 --> 00:14:54.170 what was shown a couple
NOTE Confidence: 0.975441

00:14:54.170 --> 00:14:55.529 of years ago that might

NOTE Confidence: 0.975441
00:14:55.529 --> 00:14:56.269 have increased
NOTE Confidence: 0.95410156
00:14:56.570 --> 00:14:57.070 now.
NOTE Confidence: 0.99459404
00:14:58.265 --> 00:14:59.225 But, you know, whether or
NOTE Confidence: 0.99459404
00:14:59.225 --> 00:14:59.965 not cannabis
NOTE Confidence: 0.9998047
00:15:00.345 --> 00:15:02.765 is helpful for chronic pain
NOTE Confidence: 0.88586426
00:15:03.385 --> 00:15:04.125 is really,
NOTE Confidence: 0.9834923
00:15:04.665 --> 00:15:06.105 a big question mark. As
NOTE Confidence: 0.9834923
00:15:06.105 --> 00:15:07.145 many of you know, you
NOTE Confidence: 0.9834923
00:15:07.145 --> 00:15:08.125 know, for every
NOTE Confidence: 0.9980469
00:15:08.585 --> 00:15:09.085 randomized
NOTE Confidence: 0.8967634
00:15:09.465 --> 00:15:11.305 controlled trial that's published, there's
NOTE Confidence: 0.8967634
00:15:11.305 --> 00:15:13.240 probably four meta analyses analyses
NOTE Confidence: 0.8967634
00:15:13.240 --> 00:15:14.540 that are published subsequently,
NOTE Confidence: 0.9429199
00:15:15.560 --> 00:15:17.820 to really understand, you know,
NOTE Confidence: 0.96217346
00:15:19.080 --> 00:15:20.680 wrap our heads around, can
NOTE Confidence: 0.96217346

00:15:20.680 --> 00:15:21.980 cannabis and cannabinoids
NOTE Confidence: 0.9811454

00:15:22.360 --> 00:15:23.900 across different modes of administration?
NOTE Confidence: 0.9811454

00:15:23.960 --> 00:15:24.920 Can it be helpful for
NOTE Confidence: 0.9811454

00:15:24.920 --> 00:15:26.760 chronic pain? What is chronic
NOTE Confidence: 0.9811454

00:15:26.760 --> 00:15:28.005 pain? What are the adverse
NOTE Confidence: 0.9811454

00:15:28.085 --> 00:15:29.525 effects? Do the adverse effects
NOTE Confidence: 0.9811454

00:15:29.525 --> 00:15:31.765 outweigh the potential benefits if
NOTE Confidence: 0.9811454

00:15:31.765 --> 00:15:33.385 the potential benefits are seen?
NOTE Confidence: 0.99378663

00:15:33.925 --> 00:15:35.225 So there are mixed findings
NOTE Confidence: 0.99378663

00:15:35.285 --> 00:15:36.405 with respect to whether or
NOTE Confidence: 0.99378663

00:15:36.405 --> 00:15:37.925 not cannabis and cannabinoids can
NOTE Confidence: 0.99378663

00:15:37.925 --> 00:15:39.545 be helpful for chronic pain,
NOTE Confidence: 0.95369464

00:15:39.845 --> 00:15:41.045 and, also, there are adverse
NOTE Confidence: 0.95369464

00:15:41.045 --> 00:15:41.545 effects.
NOTE Confidence: 0.9995117

00:15:42.089 --> 00:15:43.290 So that's the chronic pain
NOTE Confidence: 0.9995117

00:15:43.290 --> 00:15:44.029 part of it.

NOTE Confidence: 0.9190267

00:15:44.490 --> 00:15:45.389 I did mention,

NOTE Confidence: 0.9879761

00:15:46.410 --> 00:15:48.810 this improving appetite component of

NOTE Confidence: 0.9879761

00:15:48.810 --> 00:15:50.029 cannabis and cannabinoids.

NOTE Confidence: 0.94628906

00:15:50.649 --> 00:15:52.110 And there is this idea,

NOTE Confidence: 0.9099609

00:15:52.490 --> 00:15:54.269 that's been documented in literature

NOTE Confidence: 0.9770508

00:15:54.730 --> 00:15:55.949 that chronic pain

NOTE Confidence: 0.9641113

00:15:56.505 --> 00:15:56.985 is,

NOTE Confidence: 0.9978597

00:15:57.465 --> 00:15:59.705 positively associated with decreases in

NOTE Confidence: 0.9978597

00:15:59.705 --> 00:16:01.065 appetite. So another way to

NOTE Confidence: 0.9978597

00:16:01.065 --> 00:16:02.745 say this is that, frequently,

NOTE Confidence: 0.9978597

00:16:02.745 --> 00:16:04.185 you know, people who have

NOTE Confidence: 0.9978597

00:16:04.185 --> 00:16:05.725 chronic pain, there's an association

NOTE Confidence: 0.9978597

00:16:05.865 --> 00:16:07.965 with reductions in food intake.

NOTE Confidence: 0.99902344

00:16:08.529 --> 00:16:09.890 And when you improve one

NOTE Confidence: 0.99902344

00:16:09.890 --> 00:16:11.570 of those, you generally improve

NOTE Confidence: 0.99902344

00:16:11.570 --> 00:16:12.470 the other one.
NOTE Confidence: 0.99853516

00:16:12.930 --> 00:16:13.970 And so this talk is
NOTE Confidence: 0.99853516

00:16:13.970 --> 00:16:15.250 going to really tackle both
NOTE Confidence: 0.99853516

00:16:15.250 --> 00:16:15.990 the appetite,
NOTE Confidence: 0.99572754

00:16:16.770 --> 00:16:17.890 as well as the pain
NOTE Confidence: 0.99572754

00:16:17.890 --> 00:16:18.390 components.
NOTE Confidence: 0.991333

00:16:19.010 --> 00:16:20.290 And we know that there's
NOTE Confidence: 0.991333

00:16:20.290 --> 00:16:22.070 potential for cannabis and cannabinoids
NOTE Confidence: 0.991333

00:16:22.370 --> 00:16:24.325 for both the chronic pain
NOTE Confidence: 0.991333

00:16:24.325 --> 00:16:26.025 as well as the appetite.
NOTE Confidence: 0.9973348

00:16:26.645 --> 00:16:27.845 We know that there's really
NOTE Confidence: 0.9973348

00:16:27.845 --> 00:16:30.025 good data supporting the utility
NOTE Confidence: 0.9973348

00:16:30.165 --> 00:16:31.065 of THC,
NOTE Confidence: 0.992513

00:16:32.165 --> 00:16:33.465 for improving appetite,
NOTE Confidence: 0.9953613

00:16:33.845 --> 00:16:35.550 and reducing nausea. We know
NOTE Confidence: 0.9953613

00:16:35.630 --> 00:16:37.550 this from many studies back

NOTE Confidence: 0.9953613

00:16:37.550 --> 00:16:39.250 in the nineteen eighties that,

NOTE Confidence: 0.9529622

00:16:39.950 --> 00:16:41.630 demonstrated through a series of

NOTE Confidence: 0.9529622

00:16:41.630 --> 00:16:43.649 placebo randomized controlled trials

NOTE Confidence: 0.9646484

00:16:44.029 --> 00:16:46.269 where dronabinol, the synthetic form

NOTE Confidence: 0.9646484

00:16:46.269 --> 00:16:47.950 of THC, was studied for

NOTE Confidence: 0.9646484

00:16:47.950 --> 00:16:49.709 this for this endpoint and

NOTE Confidence: 0.9646484

00:16:49.709 --> 00:16:52.235 was subsequently approved, for chemotherapy

NOTE Confidence: 0.9646484

00:16:52.375 --> 00:16:53.355 induced nausea,

NOTE Confidence: 0.90112305

00:16:53.815 --> 00:16:54.955 and and anorexia.

NOTE Confidence: 0.98130566

00:16:56.535 --> 00:16:57.975 We know that there's another

NOTE Confidence: 0.98130566

00:16:57.975 --> 00:16:59.735 formulation of the same drug

NOTE Confidence: 0.98130566

00:16:59.735 --> 00:17:01.015 that you can take as

NOTE Confidence: 0.98130566

00:17:01.015 --> 00:17:02.535 a solution that was later

NOTE Confidence: 0.98130566

00:17:02.535 --> 00:17:04.295 approved in the two thousands

NOTE Confidence: 0.98130566

00:17:04.295 --> 00:17:05.850 called Syndros. Again, it's just

NOTE Confidence: 0.98130566

00:17:05.850 --> 00:17:07.710 Tranavanol, the same thing, synthetic

NOTE Confidence: 0.98130566

00:17:07.770 --> 00:17:08.270 THC

NOTE Confidence: 0.93178016

00:17:08.730 --> 00:17:10.170 that was also approved for

NOTE Confidence: 0.93178016

00:17:10.170 --> 00:17:10.830 this indication.

NOTE Confidence: 1

00:17:12.170 --> 00:17:13.869 When you look at THC,

NOTE Confidence: 0.99975586

00:17:14.810 --> 00:17:15.770 it seems like it could

NOTE Confidence: 0.99975586

00:17:15.770 --> 00:17:16.990 be fairly promising

NOTE Confidence: 0.999721

00:17:17.290 --> 00:17:18.890 as a therapeutic that can

NOTE Confidence: 0.999721

00:17:18.890 --> 00:17:19.790 hit both

NOTE Confidence: 0.9867225

00:17:20.545 --> 00:17:22.385 the reductions in appetite as

NOTE Confidence: 0.9867225

00:17:22.385 --> 00:17:23.825 well as the chronic pain

NOTE Confidence: 0.9867225

00:17:23.825 --> 00:17:25.045 that co occur,

NOTE Confidence: 0.99820966

00:17:25.505 --> 00:17:26.945 in the patient population. So

NOTE Confidence: 0.99820966

00:17:26.945 --> 00:17:27.665 I'm sure if there are

NOTE Confidence: 0.99820966

00:17:27.665 --> 00:17:28.965 clinicians here in the audience

NOTE Confidence: 0.96755147

00:17:29.265 --> 00:17:30.725 who have dealt with elderly

NOTE Confidence: 0.96755147
00:17:30.865 --> 00:17:32.305 people or people with chronic
NOTE Confidence: 0.96755147
00:17:32.305 --> 00:17:32.805 pain,
NOTE Confidence: 0.9983724
00:17:33.345 --> 00:17:35.345 the reductions in appetite probably
NOTE Confidence: 0.9983724
00:17:35.345 --> 00:17:35.845 resonates.
NOTE Confidence: 0.9967346
00:17:36.540 --> 00:17:37.260 When you look at the
NOTE Confidence: 0.9967346
00:17:37.260 --> 00:17:38.560 FDA approved medications,
NOTE Confidence: 0.9970703
00:17:39.660 --> 00:17:40.160 for
NOTE Confidence: 0.9926758
00:17:41.100 --> 00:17:42.560 for appetite improvement,
NOTE Confidence: 0.97237456
00:17:43.180 --> 00:17:44.700 there are only three options
NOTE Confidence: 0.97237456
00:17:44.700 --> 00:17:45.580 as far as I know
NOTE Confidence: 0.97237456
00:17:45.580 --> 00:17:46.220 at this point.
NOTE Confidence: 0.95481366
00:17:46.700 --> 00:17:48.494 Two, which are, you know,
NOTE Confidence: 0.95481366
00:17:48.734 --> 00:17:49.234 pregnenolone
NOTE Confidence: 0.8634766
00:17:49.695 --> 00:17:52.355 and, and a testosterone derivative.
NOTE Confidence: 0.9975098
00:17:52.975 --> 00:17:54.835 Both of these have, pretty
NOTE Confidence: 0.99280274

00:17:55.295 --> 00:17:56.734 nasty side effects. And then
NOTE Confidence: 0.99280274

00:17:56.734 --> 00:17:58.335 we have dronabinol, which is
NOTE Confidence: 0.99280274

00:17:58.335 --> 00:18:00.115 the synthetic form of THC.
NOTE Confidence: 0.9831779

00:18:00.850 --> 00:18:02.629 And of the three, THC
NOTE Confidence: 0.9831779

00:18:02.850 --> 00:18:03.970 is really the only one
NOTE Confidence: 0.9831779

00:18:03.970 --> 00:18:05.409 to my knowledge that might
NOTE Confidence: 0.9831779

00:18:05.409 --> 00:18:07.409 be helpful for pain. Yet,
NOTE Confidence: 0.9831779

00:18:07.409 --> 00:18:08.950 as I showed you, THC
NOTE Confidence: 0.9831779

00:18:09.009 --> 00:18:10.929 definitely has some adverse effects
NOTE Confidence: 0.9831779

00:18:10.929 --> 00:18:11.429 that
NOTE Confidence: 0.9989692

00:18:13.244 --> 00:18:14.925 aren't as desirable as a
NOTE Confidence: 0.9989692

00:18:14.925 --> 00:18:16.385 as a clinical therapeutic.
NOTE Confidence: 0.9734584

00:18:16.765 --> 00:18:18.045 And so today, we're gonna
NOTE Confidence: 0.9734584

00:18:18.045 --> 00:18:18.785 talk about,
NOTE Confidence: 0.9826118

00:18:19.244 --> 00:18:21.105 you know, how cannabis constituents
NOTE Confidence: 0.9826118

00:18:21.325 --> 00:18:22.865 might be helpful in reducing

NOTE Confidence: 0.9826118

00:18:22.925 --> 00:18:24.845 harms and potentially improve outcomes,

NOTE Confidence: 0.9826118

00:18:24.845 --> 00:18:25.825 again, from this

NOTE Confidence: 0.99746096

00:18:26.250 --> 00:18:28.430 THC sparing type of perspective.

NOTE Confidence: 0.9929429

00:18:29.450 --> 00:18:30.330 And so when we think

NOTE Confidence: 0.9929429

00:18:30.330 --> 00:18:31.690 about the different constituents, I

NOTE Confidence: 0.9929429

00:18:31.690 --> 00:18:32.490 talked a little bit about

NOTE Confidence: 0.9929429

00:18:32.490 --> 00:18:33.150 the phytocannabinoids

NOTE Confidence: 0.96136206

00:18:33.609 --> 00:18:34.410 that I'll talk a little

NOTE Confidence: 0.96136206

00:18:34.410 --> 00:18:35.609 bit about in a minute

NOTE Confidence: 0.96136206

00:18:35.609 --> 00:18:36.570 as well as the terpenes

NOTE Confidence: 0.96136206

00:18:36.570 --> 00:18:37.530 that are not unique to

NOTE Confidence: 0.96136206

00:18:37.530 --> 00:18:38.670 the cannabis plant.

NOTE Confidence: 0.99238724

00:18:38.984 --> 00:18:40.025 And it's thought that these

NOTE Confidence: 0.99238724

00:18:40.025 --> 00:18:41.545 constituents might play an important

NOTE Confidence: 0.99238724

00:18:41.545 --> 00:18:43.385 role in cannabis effects in

NOTE Confidence: 0.99238724

00:18:43.385 --> 00:18:45.645 general, specifically related to THC.

NOTE Confidence: 0.99238724

00:18:45.705 --> 00:18:46.365 And so

NOTE Confidence: 0.986875

00:18:46.665 --> 00:18:47.545 when we think about the

NOTE Confidence: 0.986875

00:18:47.545 --> 00:18:49.385 cannabis plant, there are well,

NOTE Confidence: 0.986875

00:18:49.385 --> 00:18:50.984 I guess this is debated,

NOTE Confidence: 0.986875

00:18:50.984 --> 00:18:52.424 but there are definitely a

NOTE Confidence: 0.986875

00:18:52.424 --> 00:18:54.045 hundred and twenty or more

NOTE Confidence: 0.9652913

00:18:54.600 --> 00:18:56.200 unique chemicals in the cannabis

NOTE Confidence: 0.9652913

00:18:56.200 --> 00:18:56.700 plant,

NOTE Confidence: 1

00:18:58.040 --> 00:18:58.540 that

NOTE Confidence: 0.97726005

00:18:59.080 --> 00:19:00.679 we know of. And delta

NOTE Confidence: 0.97726005

00:19:00.679 --> 00:19:01.420 nine tetrahydrocannabinol

NOTE Confidence: 0.9877577

00:19:02.280 --> 00:19:03.160 is the one that is

NOTE Confidence: 0.9877577

00:19:03.160 --> 00:19:04.940 most studied. As I demonstrated

NOTE Confidence: 0.9877577

00:19:05.080 --> 00:19:06.359 to you, there are a

NOTE Confidence: 0.9877577

00:19:06.359 --> 00:19:08.200 host of adverse effects associated

NOTE Confidence: 0.9877577

00:19:08.200 --> 00:19:10.105 with THC. It's intoxicating. It

NOTE Confidence: 0.9877577

00:19:10.105 --> 00:19:11.725 can have cognitive impairing effects.

NOTE Confidence: 0.9877577

00:19:11.945 --> 00:19:12.984 It can have what's called

NOTE Confidence: 0.9877577

00:19:12.984 --> 00:19:13.885 abuse liability.

NOTE Confidence: 0.973798

00:19:14.265 --> 00:19:15.785 So people like it. People

NOTE Confidence: 0.973798

00:19:15.785 --> 00:19:17.005 will wanna take it again.

NOTE Confidence: 0.973798

00:19:17.225 --> 00:19:18.345 We know that when people

NOTE Confidence: 0.973798

00:19:18.345 --> 00:19:19.545 take it frequently, there's a

NOTE Confidence: 0.973798

00:19:19.545 --> 00:19:20.825 subset of the population that

NOTE Confidence: 0.973798

00:19:20.825 --> 00:19:23.060 will develop physiological dependence. Not

NOTE Confidence: 0.973798

00:19:23.060 --> 00:19:25.480 everybody develops physiological dependence,

NOTE Confidence: 0.9996338

00:19:25.780 --> 00:19:27.000 but that does exist.

NOTE Confidence: 0.9940999

00:19:27.540 --> 00:19:28.740 We know that, for example,

NOTE Confidence: 0.9940999

00:19:28.740 --> 00:19:29.240 anxiety

NOTE Confidence: 0.99157715

00:19:29.619 --> 00:19:30.440 is a,

NOTE Confidence: 0.9784953

00:19:31.460 --> 00:19:33.619 adverse effect of THC depending
NOTE Confidence: 0.9784953

00:19:33.619 --> 00:19:34.420 on the dose and route
NOTE Confidence: 0.9784953

00:19:34.420 --> 00:19:35.080 of administration.
NOTE Confidence: 0.9965007

00:19:35.635 --> 00:19:36.674 But we also know that
NOTE Confidence: 0.9965007

00:19:36.674 --> 00:19:37.734 it can be a therapeutic
NOTE Confidence: 0.9965007

00:19:37.794 --> 00:19:39.895 for improving appetite, reducing nausea,
NOTE Confidence: 0.9965007

00:19:40.115 --> 00:19:41.075 and there should be a
NOTE Confidence: 0.9965007

00:19:41.075 --> 00:19:43.075 question mark there helping with
NOTE Confidence: 0.9965007

00:19:43.075 --> 00:19:43.895 chronic pain.
NOTE Confidence: 0.9887288

00:19:44.595 --> 00:19:45.734 When you look at preclinical
NOTE Confidence: 0.9887288

00:19:45.875 --> 00:19:46.375 models,
NOTE Confidence: 0.96500653

00:19:46.914 --> 00:19:48.275 with respect to delta nine
NOTE Confidence: 0.96500653

00:19:48.275 --> 00:19:48.775 tetrahydrocannabinol's
NOTE Confidence: 0.9747992

00:19:49.475 --> 00:19:50.840 effects for antinociception.
NOTE Confidence: 0.99933416

00:19:51.299 --> 00:19:52.660 So for pain relief, there's
NOTE Confidence: 0.99933416

00:19:52.660 --> 00:19:54.119 been quite a few studies

NOTE Confidence: 0.99933416
00:19:54.260 --> 00:19:54.760 across
NOTE Confidence: 0.97060925
00:19:55.220 --> 00:19:56.840 a range of different preclinical
NOTE Confidence: 0.97060925
00:19:57.059 --> 00:19:58.419 assays looking at a number
NOTE Confidence: 0.97060925
00:19:58.419 --> 00:19:59.799 of different, pain,
NOTE Confidence: 0.9942157
00:20:00.419 --> 00:20:01.780 animal models of of pain
NOTE Confidence: 0.9942157
00:20:01.780 --> 00:20:03.700 conditions that have demonstrated that
NOTE Confidence: 0.9942157
00:20:03.700 --> 00:20:05.080 THC is promising.
NOTE Confidence: 0.987854
00:20:06.635 --> 00:20:08.234 When you look at, population
NOTE Confidence: 0.987854
00:20:08.234 --> 00:20:09.434 based studies for people who
NOTE Confidence: 0.987854
00:20:09.434 --> 00:20:10.255 are using,
NOTE Confidence: 0.98239475
00:20:10.715 --> 00:20:12.635 THC based products for pain,
NOTE Confidence: 0.98239475
00:20:12.635 --> 00:20:14.494 subjects do report pain relief.
NOTE Confidence: 0.98239475
00:20:14.635 --> 00:20:15.355 And when you look at
NOTE Confidence: 0.98239475
00:20:15.355 --> 00:20:17.274 randomized controlled trials in chronic
NOTE Confidence: 0.98239475
00:20:17.274 --> 00:20:18.715 pain patients, again, there is
NOTE Confidence: 0.98239475

00:20:18.715 --> 00:20:19.994 a good signal for certain
NOTE Confidence: 0.98239475

00:20:19.994 --> 00:20:21.750 types of chronic pain that
NOTE Confidence: 0.98239475

00:20:21.750 --> 00:20:22.250 THC,
NOTE Confidence: 0.99820966

00:20:22.790 --> 00:20:23.690 might be helpful,
NOTE Confidence: 0.9998372

00:20:24.230 --> 00:20:25.130 for those indications.
NOTE Confidence: 0.96497226

00:20:25.830 --> 00:20:26.630 And then when you look
NOTE Confidence: 0.96497226

00:20:26.630 --> 00:20:28.470 at controlled laboratory studies, the
NOTE Confidence: 0.96497226

00:20:28.470 --> 00:20:29.750 work that we do that
NOTE Confidence: 0.96497226

00:20:29.750 --> 00:20:31.369 actually recruits healthy participants
NOTE Confidence: 0.99820966

00:20:31.670 --> 00:20:32.710 in order to be able
NOTE Confidence: 0.99820966

00:20:32.710 --> 00:20:33.210 to
NOTE Confidence: 0.9975586

00:20:33.825 --> 00:20:34.565 probe signals
NOTE Confidence: 0.9972857

00:20:34.865 --> 00:20:36.225 with respect to the potential
NOTE Confidence: 0.9972857

00:20:36.225 --> 00:20:37.744 therapeutic effects of cannabis and
NOTE Confidence: 0.9972857

00:20:37.744 --> 00:20:39.265 cannabinoids and variables that might
NOTE Confidence: 0.9972857

00:20:39.265 --> 00:20:40.085 impact it.

NOTE Confidence: 0.9970703

00:20:40.465 --> 00:20:42.404 We know that, THC

NOTE Confidence: 0.9831099

00:20:43.184 --> 00:20:44.865 can be analgesic in a

NOTE Confidence: 0.9831099

00:20:44.865 --> 00:20:46.410 dose dependent and route dependent

NOTE Confidence: 0.9831099

00:20:46.410 --> 00:20:46.910 way.

NOTE Confidence: 0.9967041

00:20:47.290 --> 00:20:48.250 And so this was a

NOTE Confidence: 0.9967041

00:20:48.250 --> 00:20:48.750 study,

NOTE Confidence: 0.9931946

00:20:49.130 --> 00:20:50.410 that we did back in

NOTE Confidence: 0.9931946

00:20:50.410 --> 00:20:51.470 two thousand thirteen,

NOTE Confidence: 0.99869794

00:20:52.570 --> 00:20:54.090 looking at how route of

NOTE Confidence: 0.99869794

00:20:54.090 --> 00:20:54.590 administration

NOTE Confidence: 0.9485186

00:20:54.970 --> 00:20:57.450 and dose can impact pain

NOTE Confidence: 0.9485186

00:20:57.450 --> 00:20:59.690 response in healthy participants. So

NOTE Confidence: 0.9485186

00:20:59.690 --> 00:21:02.005 we elicited a painful response

NOTE Confidence: 0.9485186

00:21:02.005 --> 00:21:03.125 using something called a cold

NOTE Confidence: 0.9485186

00:21:03.125 --> 00:21:04.244 pressor test, which I'll talk

NOTE Confidence: 0.9485186

00:21:04.244 --> 00:21:05.445 about in a minute, and
NOTE Confidence: 0.9485186

00:21:05.445 --> 00:21:06.565 we measured. We wanted to
NOTE Confidence: 0.9485186

00:21:06.565 --> 00:21:07.445 see just based off a
NOTE Confidence: 0.9485186

00:21:07.445 --> 00:21:08.725 route of administration where there
NOTE Confidence: 0.9485186

00:21:08.725 --> 00:21:10.165 are differences and also based
NOTE Confidence: 0.9485186

00:21:10.165 --> 00:21:10.984 off of dose.
NOTE Confidence: 0.9674522

00:21:11.445 --> 00:21:12.325 And what we found was
NOTE Confidence: 0.9674522

00:21:12.325 --> 00:21:14.484 that the, reduction in pain
NOTE Confidence: 0.9674522

00:21:14.484 --> 00:21:15.845 does occur, but that's not
NOTE Confidence: 0.9674522

00:21:15.845 --> 00:21:17.380 without adverse effects as,
NOTE Confidence: 0.95092773

00:21:17.780 --> 00:21:18.760 you could have predicted
NOTE Confidence: 0.9891293

00:21:19.060 --> 00:21:20.020 me to say. And so
NOTE Confidence: 0.9891293

00:21:20.020 --> 00:21:21.619 this is a modified figure.
NOTE Confidence: 0.9891293

00:21:21.619 --> 00:21:22.900 Actually, this isn't modified. This
NOTE Confidence: 0.9891293

00:21:22.900 --> 00:21:24.119 is the figure from
NOTE Confidence: 0.96456474

00:21:24.420 --> 00:21:26.500 from, that paper where we

NOTE Confidence: 0.96456474
00:21:26.500 --> 00:21:27.320 had participants,
NOTE Confidence: 0.9000878
00:21:28.100 --> 00:21:30.744 take oral THC, so dronabinol
NOTE Confidence: 0.9000878
00:21:30.965 --> 00:21:32.585 twenty milligrams or smoke
NOTE Confidence: 0.97353107
00:21:32.885 --> 00:21:34.405 nearly an equivalent amount of
NOTE Confidence: 0.97353107
00:21:34.405 --> 00:21:36.164 THC, inhale an equivalent amount
NOTE Confidence: 0.97353107
00:21:36.164 --> 00:21:36.825 of THC.
NOTE Confidence: 0.91950685
00:21:37.605 --> 00:21:39.285 So a pretty low strength
NOTE Confidence: 0.91950685
00:21:39.285 --> 00:21:41.145 of cannabis, four percent THC.
NOTE Confidence: 0.9144287
00:21:41.880 --> 00:21:42.840 And then they were also
NOTE Confidence: 0.9144287
00:21:42.840 --> 00:21:43.900 subjected to placebo.
NOTE Confidence: 0.988481
00:21:44.520 --> 00:21:45.880 And, again, these are healthy
NOTE Confidence: 0.988481
00:21:45.880 --> 00:21:48.119 participants who are actually pretty
NOTE Confidence: 0.988481
00:21:48.119 --> 00:21:48.619 frequent,
NOTE Confidence: 1
00:21:49.080 --> 00:21:49.580 cannabis
NOTE Confidence: 1
00:21:49.880 --> 00:21:50.380 smokers
NOTE Confidence: 0.9641113

00:21:50.680 --> 00:21:52.300 in this particular population.

NOTE Confidence: 0.96572644

00:21:52.840 --> 00:21:53.880 And we use something called

NOTE Confidence: 0.96572644

00:21:53.880 --> 00:21:55.080 a cold presser test where

NOTE Confidence: 0.96572644

00:21:55.080 --> 00:21:55.900 we have people

NOTE Confidence: 0.94139403

00:21:56.315 --> 00:21:57.355 tell us after they put

NOTE Confidence: 0.94139403

00:21:57.355 --> 00:21:58.234 their hand in ice cold

NOTE Confidence: 0.94139403

00:21:58.234 --> 00:22:00.075 water at what point does

NOTE Confidence: 0.94139403

00:22:00.075 --> 00:22:01.775 that cold water feel painful,

NOTE Confidence: 0.93026733

00:22:02.155 --> 00:22:03.195 and how long can they

NOTE Confidence: 0.93026733

00:22:03.195 --> 00:22:03.994 keep their hand in the

NOTE Confidence: 0.93026733

00:22:03.994 --> 00:22:05.275 ice cold water. It says

NOTE Confidence: 0.93026733

00:22:05.275 --> 00:22:06.554 pain tolerance. What we see

NOTE Confidence: 0.93026733

00:22:06.554 --> 00:22:07.695 here is pain threshold.

NOTE Confidence: 0.9511719

00:22:08.369 --> 00:22:09.430 And what you could see,

NOTE Confidence: 0.9730632

00:22:09.970 --> 00:22:11.830 with the dotted line is

NOTE Confidence: 0.9730632

00:22:11.890 --> 00:22:12.390 the

NOTE Confidence: 0.9980469
00:22:12.770 --> 00:22:13.270 percent
NOTE Confidence: 0.91031903
00:22:13.650 --> 00:22:14.630 of the participants'
NOTE Confidence: 0.99212646
00:22:15.090 --> 00:22:17.170 baseline threshold. So before they
NOTE Confidence: 0.99212646
00:22:17.170 --> 00:22:18.070 got the drug,
NOTE Confidence: 0.99902344
00:22:18.690 --> 00:22:20.230 how much did their
NOTE Confidence: 0.9888509
00:22:20.609 --> 00:22:23.090 pain threshold change? So the
NOTE Confidence: 0.9888509
00:22:23.090 --> 00:22:23.590 higher
NOTE Confidence: 0.9996338
00:22:24.034 --> 00:22:25.654 the threshold, the more
NOTE Confidence: 0.995166
00:22:25.955 --> 00:22:27.494 they can withstand the pain.
NOTE Confidence: 0.9550387
00:22:28.434 --> 00:22:30.434 And we captured this effect
NOTE Confidence: 0.9550387
00:22:30.434 --> 00:22:31.554 over the course of six
NOTE Confidence: 0.9550387
00:22:31.554 --> 00:22:32.595 hours of a session. And
NOTE Confidence: 0.9550387
00:22:32.595 --> 00:22:33.394 what you could see is
NOTE Confidence: 0.9550387
00:22:33.394 --> 00:22:35.394 that when participants received placebo,
NOTE Confidence: 0.9550387
00:22:35.394 --> 00:22:36.355 we did not see any
NOTE Confidence: 0.9550387

00:22:36.355 --> 00:22:36.855 fluctuation
NOTE Confidence: 0.97786456

00:22:37.234 --> 00:22:38.215 in pain threshold.
NOTE Confidence: 0.9926758

00:22:39.119 --> 00:22:40.100 But when participants
NOTE Confidence: 0.97532433

00:22:40.400 --> 00:22:42.480 smoked cannabis with THC in
NOTE Confidence: 0.97532433

00:22:42.480 --> 00:22:44.240 it, we saw immediate increase
NOTE Confidence: 0.97532433

00:22:44.240 --> 00:22:45.920 in pain threshold as expect
NOTE Confidence: 0.97532433

00:22:46.000 --> 00:22:47.280 as expected based off of
NOTE Confidence: 0.97532433

00:22:47.280 --> 00:22:47.780 pharmacokinetics.
NOTE Confidence: 0.9882609

00:22:49.040 --> 00:22:50.080 And it quickly came back
NOTE Confidence: 0.9882609

00:22:50.080 --> 00:22:51.280 down to baseline. And with
NOTE Confidence: 0.9882609

00:22:51.280 --> 00:22:52.100 oral THC,
NOTE Confidence: 0.99534774

00:22:52.560 --> 00:22:54.420 we saw a slow onset
NOTE Confidence: 0.99534774

00:22:54.480 --> 00:22:56.535 of that analgesic effect, but
NOTE Confidence: 0.99534774

00:22:56.535 --> 00:22:58.135 it was longer lasting than
NOTE Confidence: 0.99534774

00:22:58.135 --> 00:22:59.195 with the inhaled,
NOTE Confidence: 0.9995117

00:22:59.975 --> 00:23:01.115 as one would expect.

NOTE Confidence: 0.99902344
00:23:01.734 --> 00:23:02.875 And when we
NOTE Confidence: 0.97067714
00:23:03.575 --> 00:23:04.775 look to see, you know,
NOTE Confidence: 0.97067714
00:23:04.775 --> 00:23:06.615 the adverse effects associated with
NOTE Confidence: 0.97067714
00:23:06.615 --> 00:23:08.554 both routes of administration, similarly,
NOTE Confidence: 0.97067714
00:23:08.775 --> 00:23:09.630 when we ask people to
NOTE Confidence: 0.97067714
00:23:09.630 --> 00:23:10.910 rate how high they felt
NOTE Confidence: 0.97067714
00:23:10.910 --> 00:23:12.109 on a scale of zero
NOTE Confidence: 0.97067714
00:23:12.109 --> 00:23:13.710 to one hundred, zero meaning
NOTE Confidence: 0.97067714
00:23:13.710 --> 00:23:14.670 not high at all, a
NOTE Confidence: 0.97067714
00:23:14.670 --> 00:23:16.270 hundred being very, very high,
NOTE Confidence: 0.97067714
00:23:16.270 --> 00:23:17.330 maximally high,
NOTE Confidence: 0.97771347
00:23:17.790 --> 00:23:19.150 we saw that the smoked,
NOTE Confidence: 0.97771347
00:23:19.470 --> 00:23:21.650 cannabis with THC produced intoxicating
NOTE Confidence: 0.97771347
00:23:21.869 --> 00:23:23.170 effects that were immediate
NOTE Confidence: 0.99664307
00:23:23.695 --> 00:23:24.994 and of high magnitude.
NOTE Confidence: 1

00:23:25.615 --> 00:23:26.755 The oral THC
NOTE Confidence: 0.9736772

00:23:27.535 --> 00:23:29.455 produced slower onset of effect,
NOTE Confidence: 0.9736772

00:23:29.455 --> 00:23:31.055 and the magnitude was not
NOTE Confidence: 0.9736772

00:23:31.055 --> 00:23:31.535 as,
NOTE Confidence: 0.9921875

00:23:32.015 --> 00:23:32.515 significant.
NOTE Confidence: 0.9808873

00:23:33.455 --> 00:23:35.075 And then we asked participant
NOTE Confidence: 0.9808873

00:23:35.375 --> 00:23:36.420 abuse liability.
NOTE Confidence: 0.9894426

00:23:37.119 --> 00:23:39.119 One of the areas of
NOTE Confidence: 0.9894426

00:23:39.119 --> 00:23:40.800 research that I've been engaged
NOTE Confidence: 0.9894426

00:23:40.800 --> 00:23:41.840 in for the last twenty
NOTE Confidence: 0.9894426

00:23:41.840 --> 00:23:43.200 years is related to the
NOTE Confidence: 0.9894426

00:23:43.200 --> 00:23:45.700 abuse related effects of psychoactive
NOTE Confidence: 0.9894426

00:23:45.760 --> 00:23:46.880 substances. And so this is
NOTE Confidence: 0.9894426

00:23:46.880 --> 00:23:48.320 something that we do in
NOTE Confidence: 0.9894426

00:23:48.320 --> 00:23:49.060 our laboratory.
NOTE Confidence: 0.9885392

00:23:49.840 --> 00:23:51.015 And we ask people how

NOTE Confidence: 0.9885392
00:23:51.015 --> 00:23:52.055 good of a drug effect
NOTE Confidence: 0.9885392
00:23:52.055 --> 00:23:53.095 they feel, how much they
NOTE Confidence: 0.9885392
00:23:53.095 --> 00:23:54.055 like it, how much they're
NOTE Confidence: 0.9885392
00:23:54.055 --> 00:23:55.355 willing to take it again.
NOTE Confidence: 0.9885392
00:23:55.575 --> 00:23:56.455 Now, of course, keep in
NOTE Confidence: 0.9885392
00:23:56.455 --> 00:23:57.655 mind that these people are
NOTE Confidence: 0.9885392
00:23:58.135 --> 00:23:59.655 they do use cannabis, so
NOTE Confidence: 0.9885392
00:23:59.655 --> 00:24:00.875 it would be very surprising
NOTE Confidence: 0.9885392
00:24:01.095 --> 00:24:02.615 if they did not experience
NOTE Confidence: 0.9885392
00:24:02.615 --> 00:24:03.335 a good effect,
NOTE Confidence: 0.9967332
00:24:04.140 --> 00:24:05.340 from our cannabis. But what
NOTE Confidence: 0.9967332
00:24:05.340 --> 00:24:06.220 we can see here is
NOTE Confidence: 0.9967332
00:24:06.220 --> 00:24:08.540 that the good effect rating
NOTE Confidence: 0.9967332
00:24:08.540 --> 00:24:10.460 was different between the oral
NOTE Confidence: 0.9967332
00:24:10.460 --> 00:24:10.960 administration,
NOTE Confidence: 0.9644007

00:24:12.060 --> 00:24:13.840 relative to the smoked administration.

NOTE Confidence: 0.9644007

00:24:14.060 --> 00:24:15.820 Smoked had a a higher

NOTE Confidence: 0.9644007

00:24:15.820 --> 00:24:17.820 magnitude of effect than oral,

NOTE Confidence: 0.9644007

00:24:17.820 --> 00:24:19.395 and, actually, oral didn't really

NOTE Confidence: 0.9644007

00:24:19.475 --> 00:24:20.994 look any different than than

NOTE Confidence: 0.9644007

00:24:20.994 --> 00:24:22.135 a placebo.

NOTE Confidence: 0.99541014

00:24:22.595 --> 00:24:23.475 And so what we could

NOTE Confidence: 0.99541014

00:24:23.475 --> 00:24:24.855 see here is a separation

NOTE Confidence: 1

00:24:25.395 --> 00:24:25.895 between

NOTE Confidence: 0.9986328

00:24:26.275 --> 00:24:28.375 the different effects of THC

NOTE Confidence: 0.9873047

00:24:28.915 --> 00:24:30.435 based specifically on route of

NOTE Confidence: 0.9873047

00:24:30.435 --> 00:24:30.935 administration.

NOTE Confidence: 0.9992676

00:24:31.475 --> 00:24:32.215 We saw,

NOTE Confidence: 0.9930245

00:24:32.675 --> 00:24:34.530 analgesic effects with two routes

NOTE Confidence: 0.9930245

00:24:34.530 --> 00:24:35.350 of administration,

NOTE Confidence: 0.9995117

00:24:35.810 --> 00:24:36.550 but intoxication

NOTE Confidence: 0.9870931

00:24:36.850 --> 00:24:38.930 and abuse liability ratings were

NOTE Confidence: 0.9870931

00:24:38.930 --> 00:24:40.130 much lower with the oral

NOTE Confidence: 0.9870931

00:24:40.130 --> 00:24:41.910 THC relative to the smoked.

NOTE Confidence: 0.9301904

00:24:42.210 --> 00:24:43.730 And so this was oh,

NOTE Confidence: 0.9301904

00:24:43.730 --> 00:24:45.090 yeah. Sorry. Yeah. Sorry if

NOTE Confidence: 0.9301904

00:24:45.090 --> 00:24:47.234 I'm, interrupting you. But Please.

NOTE Confidence: 0.9301904

00:24:47.315 --> 00:24:48.275 In the pre like, in

NOTE Confidence: 0.9301904

00:24:48.275 --> 00:24:49.395 this study that you just

NOTE Confidence: 0.9301904

00:24:49.395 --> 00:24:50.295 showed the results,

NOTE Confidence: 0.7645508

00:24:50.835 --> 00:24:52.035 they were cannabis. You're like

NOTE Confidence: 0.7645508

00:24:52.035 --> 00:24:53.975 healthy individuals who use cannabis

NOTE Confidence: 0.9980469

00:24:54.355 --> 00:24:55.415 frequently. Right?

NOTE Confidence: 0.99365234

00:24:56.835 --> 00:24:58.355 Yes. So these were people

NOTE Confidence: 0.99365234

00:24:58.355 --> 00:24:59.395 who are not who are

NOTE Confidence: 0.99365234

00:24:59.395 --> 00:24:59.895 tolerant

NOTE Confidence: 0.9137573

00:25:00.200 --> 00:25:01.340 probably, to some degree.
NOTE Confidence: 0.9984654

00:25:01.640 --> 00:25:02.920 And so the twenty milligrams
NOTE Confidence: 0.9984654

00:25:02.920 --> 00:25:03.660 of THC
NOTE Confidence: 0.9940378

00:25:04.119 --> 00:25:05.400 is a pretty hefty dose,
NOTE Confidence: 0.9940378

00:25:05.640 --> 00:25:07.320 for people relative, you know,
NOTE Confidence: 0.9940378

00:25:07.320 --> 00:25:09.000 to doses that for people
NOTE Confidence: 0.9940378

00:25:09.000 --> 00:25:10.300 who are not experienced.
NOTE Confidence: 0.97658575

00:25:11.000 --> 00:25:12.119 So this was a these
NOTE Confidence: 0.97658575

00:25:12.119 --> 00:25:13.215 these were people who were
NOTE Confidence: 0.97658575

00:25:13.294 --> 00:25:15.075 pretty tolerant to to THC's
NOTE Confidence: 0.97658575

00:25:15.215 --> 00:25:16.815 effects Mhmm. I I would
NOTE Confidence: 0.97658575

00:25:16.815 --> 00:25:17.315 say.
NOTE Confidence: 0.9067383

00:25:18.335 --> 00:25:19.475 And they preferred
NOTE Confidence: 0.82033694

00:25:20.335 --> 00:25:21.775 the route of administration that
NOTE Confidence: 0.82033694

00:25:21.775 --> 00:25:23.715 use cannabis use was smoking
NOTE Confidence: 0.9343706

00:25:24.015 --> 00:25:25.294 or they you had both

NOTE Confidence: 0.9343706

00:25:25.294 --> 00:25:27.635 subjects who had edibles or

NOTE Confidence: 0.9343706

00:25:27.934 --> 00:25:28.434 smoking?

NOTE Confidence: 0.9890137

00:25:29.320 --> 00:25:31.100 These participants were smokers.

NOTE Confidence: 0.95365393

00:25:31.480 --> 00:25:33.720 Smokers. Yeah. Yeah. Yeah. These

NOTE Confidence: 0.95365393

00:25:33.720 --> 00:25:35.020 participants were smokers.

NOTE Confidence: 0.9868164

00:25:36.040 --> 00:25:38.140 Had they been using orally,

NOTE Confidence: 0.9868164

00:25:38.359 --> 00:25:39.560 we might have seen a

NOTE Confidence: 0.9868164

00:25:39.560 --> 00:25:40.619 a different response.

NOTE Confidence: 0.94555664

00:25:41.080 --> 00:25:41.560 This,

NOTE Confidence: 0.9379883

00:25:42.335 --> 00:25:43.615 study was also using a

NOTE Confidence: 0.9379883

00:25:43.615 --> 00:25:45.455 double dummy design. So every

NOTE Confidence: 0.9379883

00:25:45.455 --> 00:25:47.395 single session this was repeated

NOTE Confidence: 0.9379883

00:25:47.535 --> 00:25:49.375 repeated measure, so everybody got

NOTE Confidence: 0.9379883

00:25:49.375 --> 00:25:50.275 all drug conditions.

NOTE Confidence: 0.9822716

00:25:50.815 --> 00:25:52.994 During every session, participants smoked

NOTE Confidence: 0.9822716

00:25:53.135 --> 00:25:54.815 a cannabis cigarette that had
NOTE Confidence: 0.9822716

00:25:54.815 --> 00:25:55.935 THC in it or did
NOTE Confidence: 0.9822716

00:25:55.935 --> 00:25:57.135 not, and they also got
NOTE Confidence: 0.9822716

00:25:57.135 --> 00:25:58.390 a capsule that either had
NOTE Confidence: 0.9822716

00:25:58.390 --> 00:25:59.270 the THC in it or
NOTE Confidence: 0.9822716

00:25:59.270 --> 00:26:00.710 did not. And so they
NOTE Confidence: 0.9822716

00:26:00.710 --> 00:26:02.230 didn't know which one had
NOTE Confidence: 0.9822716

00:26:02.230 --> 00:26:03.750 the THC, if it had
NOTE Confidence: 0.9822716

00:26:03.750 --> 00:26:05.910 THC, and the experimenters didn't
NOTE Confidence: 0.9822716

00:26:05.910 --> 00:26:06.730 know either.
NOTE Confidence: 0.92381793

00:26:07.190 --> 00:26:08.549 Mhmm. Mhmm. That's what we
NOTE Confidence: 0.92381793

00:26:08.549 --> 00:26:09.910 used to Yeah. Yeah. Thank
NOTE Confidence: 0.92381793

00:26:09.910 --> 00:26:10.630 you. Thank you for the
NOTE Confidence: 0.92381793

00:26:10.630 --> 00:26:11.910 question. Happy to answer any
NOTE Confidence: 0.92381793

00:26:11.910 --> 00:26:13.130 questions along the way.
NOTE Confidence: 0.9499512

00:26:14.695 --> 00:26:15.434 What this

NOTE Confidence: 0.9598912
00:26:15.734 --> 00:26:17.095 study demonstrates to us is
NOTE Confidence: 0.9598912
00:26:17.095 --> 00:26:18.294 that even though, you know,
NOTE Confidence: 0.9598912
00:26:18.294 --> 00:26:19.674 we're using healthy participants,
NOTE Confidence: 0.99731445
00:26:19.975 --> 00:26:21.434 we were able to
NOTE Confidence: 1
00:26:21.975 --> 00:26:22.475 test
NOTE Confidence: 0.9995117
00:26:23.174 --> 00:26:24.075 and understand
NOTE Confidence: 0.9550781
00:26:24.375 --> 00:26:24.875 signals
NOTE Confidence: 0.99605304
00:26:25.335 --> 00:26:27.335 with respect to cannabinoid induced
NOTE Confidence: 0.99605304
00:26:27.335 --> 00:26:27.835 analgesia
NOTE Confidence: 0.9817243
00:26:28.800 --> 00:26:30.480 and understand in tandem some
NOTE Confidence: 0.9817243
00:26:30.480 --> 00:26:31.940 of the adverse effects that
NOTE Confidence: 0.9817243
00:26:32.000 --> 00:26:33.380 are interesting to me
NOTE Confidence: 0.9707031
00:26:33.680 --> 00:26:35.280 as a scientist that started
NOTE Confidence: 0.9707031
00:26:35.280 --> 00:26:36.980 off studying substance use disorders
NOTE Confidence: 0.86376953
00:26:37.360 --> 00:26:38.000 as well,
NOTE Confidence: 0.96667904

00:26:38.400 --> 00:26:39.840 as the public with respect
NOTE Confidence: 0.96667904

00:26:39.840 --> 00:26:41.120 to the public health relevance.
NOTE Confidence: 0.96667904

00:26:41.120 --> 00:26:42.395 And we knew from the
NOTE Confidence: 0.96667904

00:26:42.395 --> 00:26:43.595 study I only showed a
NOTE Confidence: 0.96667904

00:26:43.595 --> 00:26:44.794 couple of figures from this,
NOTE Confidence: 0.96667904

00:26:44.794 --> 00:26:46.015 but we knew that
NOTE Confidence: 0.98738605

00:26:46.395 --> 00:26:48.395 we can reliably induce these
NOTE Confidence: 0.98738605

00:26:48.395 --> 00:26:49.914 effects and that it was
NOTE Confidence: 0.98738605

00:26:49.914 --> 00:26:51.534 dependent on route of administration,
NOTE Confidence: 0.98377824

00:26:52.395 --> 00:26:53.994 dependent on and dependent on
NOTE Confidence: 0.98377824

00:26:53.994 --> 00:26:54.955 dose. And so we were
NOTE Confidence: 0.98377824

00:26:54.955 --> 00:26:56.190 able to test these effects
NOTE Confidence: 0.98377824

00:26:56.190 --> 00:26:57.230 in humans, again,
NOTE Confidence: 0.97635454

00:26:57.869 --> 00:26:59.630 in healthy participants and use
NOTE Confidence: 0.97635454

00:26:59.630 --> 00:27:00.990 this cold presser test. And
NOTE Confidence: 0.97635454

00:27:00.990 --> 00:27:01.710 I'll talk a little bit

NOTE Confidence: 0.97635454
00:27:01.710 --> 00:27:02.750 more about the cold presser
NOTE Confidence: 0.97635454
00:27:02.750 --> 00:27:04.269 test in a minute. So
NOTE Confidence: 0.97635454
00:27:04.269 --> 00:27:05.010 other phytocannabinoids
NOTE Confidence: 0.9955615
00:27:05.549 --> 00:27:06.269 that I know you've heard
NOTE Confidence: 0.9955615
00:27:06.269 --> 00:27:07.490 of, of course, is cannabidiol.
NOTE Confidence: 0.9934624
00:27:08.350 --> 00:27:10.269 Unlike THC, cannabidiol is not
NOTE Confidence: 0.9934624
00:27:10.269 --> 00:27:11.684 intoxicating. It does not have
NOTE Confidence: 0.9934624
00:27:11.684 --> 00:27:12.585 abuse liability
NOTE Confidence: 0.96835935
00:27:13.284 --> 00:27:14.904 at very high doses given,
NOTE Confidence: 0.97314453
00:27:15.445 --> 00:27:16.184 every day
NOTE Confidence: 0.9216797
00:27:16.484 --> 00:27:18.585 if there is a cessation
NOTE Confidence: 0.97094727
00:27:18.965 --> 00:27:20.904 of that drug being administered.
NOTE Confidence: 0.99383545
00:27:21.445 --> 00:27:22.565 To our knowledge, we have
NOTE Confidence: 0.99383545
00:27:22.565 --> 00:27:24.005 not seen the literature has
NOTE Confidence: 0.99383545
00:27:24.005 --> 00:27:25.169 not seen any type of
NOTE Confidence: 0.99383545

00:27:25.169 --> 00:27:27.730 withdrawal from cannabidiol. So it's
NOTE Confidence: 0.99383545

00:27:27.730 --> 00:27:29.429 very different than THC
NOTE Confidence: 0.9029541

00:27:29.730 --> 00:27:31.649 even though molecularly it's quite
NOTE Confidence: 0.9029541

00:27:31.649 --> 00:27:32.149 similar.
NOTE Confidence: 0.97944546

00:27:32.450 --> 00:27:33.409 We know that it has
NOTE Confidence: 0.97944546

00:27:33.409 --> 00:27:34.929 therapeutic effects. It was FDA
NOTE Confidence: 0.97944546

00:27:34.929 --> 00:27:36.850 approved for pediatric seizure disorders
NOTE Confidence: 0.97944546

00:27:36.850 --> 00:27:38.309 back in two thousand eighteen.
NOTE Confidence: 0.97944546

00:27:38.450 --> 00:27:39.767 There's a hypothesis that it
NOTE Confidence: 0.97944546

00:27:39.767 --> 00:27:40.765 might be helpful for certain
NOTE Confidence: 0.97944546

00:27:40.765 --> 00:27:42.525 types of anxiety. We know
NOTE Confidence: 0.97944546

00:27:42.525 --> 00:27:43.405 that pain is one of
NOTE Confidence: 0.97944546

00:27:43.405 --> 00:27:44.765 the primary reasons why people
NOTE Confidence: 0.97944546

00:27:44.765 --> 00:27:45.505 use CBD.
NOTE Confidence: 0.96153426

00:27:45.885 --> 00:27:47.005 But at this point in
NOTE Confidence: 0.96153426

00:27:47.005 --> 00:27:48.685 time, the overwhelming evidence of

NOTE Confidence: 0.96153426
00:27:48.685 --> 00:27:50.945 CBD by itself and exclusion
NOTE Confidence: 0.96153426
00:27:51.005 --> 00:27:52.145 without any THC,
NOTE Confidence: 0.9692383
00:27:52.765 --> 00:27:53.005 it's
NOTE Confidence: 0.9953125
00:27:54.540 --> 00:27:56.240 the evidence is is sparse,
NOTE Confidence: 0.99902344
00:27:56.619 --> 00:27:57.119 and
NOTE Confidence: 0.9995117
00:27:58.380 --> 00:28:00.060 the the field is working
NOTE Confidence: 0.9995117
00:28:00.060 --> 00:28:00.880 in that area.
NOTE Confidence: 0.96282333
00:28:01.660 --> 00:28:03.500 In addition to CBD and
NOTE Confidence: 0.96282333
00:28:03.500 --> 00:28:05.340 THC, there's many other minor
NOTE Confidence: 0.96282333
00:28:05.340 --> 00:28:06.855 cannabinoids that are of interest,
NOTE Confidence: 0.96282333
00:28:06.934 --> 00:28:08.455 Cannabinol, which people think it
NOTE Confidence: 0.96282333
00:28:08.455 --> 00:28:09.655 might be helpful for sleep,
NOTE Confidence: 0.96282333
00:28:09.655 --> 00:28:10.155 CBDV,
NOTE Confidence: 0.9803548
00:28:10.695 --> 00:28:11.915 and then, of course, CBG,
NOTE Confidence: 0.9905192
00:28:12.535 --> 00:28:14.375 which is the minor cannabinoid
NOTE Confidence: 0.9905192

00:28:14.375 --> 00:28:15.255 that I'm gonna be talking
NOTE Confidence: 0.9905192
00:28:15.255 --> 00:28:15.994 about today.
NOTE Confidence: 0.9995117
00:28:17.015 --> 00:28:18.135 We're doing some work with
NOTE Confidence: 0.9995117
00:28:18.135 --> 00:28:19.895 some other minor cannabinoids as
NOTE Confidence: 0.9995117
00:28:19.895 --> 00:28:20.395 well.
NOTE Confidence: 0.9930013
00:28:20.809 --> 00:28:21.869 CBG is interesting,
NOTE Confidence: 0.9939521
00:28:22.490 --> 00:28:23.770 because when we started working
NOTE Confidence: 0.9939521
00:28:23.770 --> 00:28:24.970 on this, there was really
NOTE Confidence: 0.9939521
00:28:24.970 --> 00:28:27.049 only animal studies related to
NOTE Confidence: 0.9939521
00:28:27.049 --> 00:28:28.429 CBG, and it was
NOTE Confidence: 0.9807129
00:28:28.730 --> 00:28:30.169 clear from those few animal
NOTE Confidence: 0.9807129
00:28:30.169 --> 00:28:30.669 studies,
NOTE Confidence: 0.96393657
00:28:31.210 --> 00:28:32.169 as I'll show you in
NOTE Confidence: 0.96393657
00:28:32.169 --> 00:28:33.255 a minute, is that it
NOTE Confidence: 0.96393657
00:28:33.255 --> 00:28:34.215 did not have the same
NOTE Confidence: 0.96393657
00:28:34.215 --> 00:28:36.475 type of THC related effects,

NOTE Confidence: 0.96393657
00:28:36.695 --> 00:28:37.275 the cadavermetic
NOTE Confidence: 0.9423828
00:28:37.575 --> 00:28:39.115 effects that are prototypical
NOTE Confidence: 0.9980469
00:28:40.055 --> 00:28:40.555 of
NOTE Confidence: 0.91587204
00:28:41.335 --> 00:28:43.175 cannabinoids that act specifically at
NOTE Confidence: 0.91587204
00:28:43.175 --> 00:28:44.375 that c v one receptor.
NOTE Confidence: 0.91587204
00:28:44.375 --> 00:28:45.735 So it looked very different
NOTE Confidence: 0.91587204
00:28:45.735 --> 00:28:46.555 than THC.
NOTE Confidence: 0.9335327
00:28:47.790 --> 00:28:49.490 And there was interest,
NOTE Confidence: 0.9972331
00:28:49.950 --> 00:28:50.930 in the preclinical
NOTE Confidence: 0.97805786
00:28:51.310 --> 00:28:52.910 literature as well as, you
NOTE Confidence: 0.97805786
00:28:52.910 --> 00:28:54.290 know, the industry
NOTE Confidence: 0.9413249
00:28:54.670 --> 00:28:55.950 and people who are using
NOTE Confidence: 0.9413249
00:28:55.950 --> 00:28:56.450 CBG,
NOTE Confidence: 0.99072266
00:28:57.310 --> 00:28:59.230 for its potential helpfulness for
NOTE Confidence: 0.99072266
00:28:59.230 --> 00:29:00.290 reducing pain,
NOTE Confidence: 0.86505127

00:29:02.575 --> 00:29:05.534 helping with, appetite, antidepressant like
NOTE Confidence: 0.86505127

00:29:05.534 --> 00:29:07.375 effects. And then also now
NOTE Confidence: 0.86505127

00:29:07.375 --> 00:29:08.115 there's this,
NOTE Confidence: 0.9836914

00:29:08.735 --> 00:29:10.174 part of the literature that
NOTE Confidence: 0.9836914

00:29:10.174 --> 00:29:12.274 looks at immune function and,
NOTE Confidence: 0.9118164

00:29:13.294 --> 00:29:14.755 and as well as anxiety.
NOTE Confidence: 0.9664453

00:29:16.030 --> 00:29:17.490 So as I mentioned before,
NOTE Confidence: 0.9664453

00:29:17.630 --> 00:29:19.070 we're seeing a booming trend
NOTE Confidence: 0.9664453

00:29:19.070 --> 00:29:20.990 and interest into these, minor
NOTE Confidence: 0.9664453

00:29:20.990 --> 00:29:23.150 cannabinoids probably in part because
NOTE Confidence: 0.9664453

00:29:23.150 --> 00:29:24.850 similar to c b CBD,
NOTE Confidence: 0.9975098

00:29:25.150 --> 00:29:27.410 there isn't that acute intoxication,
NOTE Confidence: 0.9774848

00:29:28.030 --> 00:29:29.790 acute cognitive impairing effects, and
NOTE Confidence: 0.9774848

00:29:29.790 --> 00:29:30.735 there's also hint in the
NOTE Confidence: 0.9774848

00:29:30.735 --> 00:29:32.735 preclinical literature suggesting that they
NOTE Confidence: 0.9774848

00:29:32.735 --> 00:29:33.555 might be therapeutic.

NOTE Confidence: 0.996109
00:29:34.255 --> 00:29:35.295 And the big question is,
NOTE Confidence: 0.996109
00:29:35.295 --> 00:29:36.015 you know, what are the
NOTE Confidence: 0.996109
00:29:36.015 --> 00:29:37.135 effects of these types of
NOTE Confidence: 0.996109
00:29:37.135 --> 00:29:37.635 products?
NOTE Confidence: 0.9609611
00:29:38.175 --> 00:29:39.775 Are they even safe? At
NOTE Confidence: 0.9609611
00:29:39.775 --> 00:29:40.975 what dose are they safe?
NOTE Confidence: 0.9609611
00:29:40.975 --> 00:29:41.775 You know, at what mode
NOTE Confidence: 0.9609611
00:29:41.775 --> 00:29:43.375 of administration? And, also, of
NOTE Confidence: 0.9609611
00:29:43.375 --> 00:29:44.655 course, are they therapeutic for
NOTE Confidence: 0.9609611
00:29:44.655 --> 00:29:46.110 the indications for which they're
NOTE Confidence: 0.9609611
00:29:46.350 --> 00:29:46.850 given?
NOTE Confidence: 0.99370813
00:29:47.230 --> 00:29:48.030 And if you look at
NOTE Confidence: 0.99370813
00:29:48.030 --> 00:29:49.950 the holistic interest in the
NOTE Confidence: 0.99370813
00:29:49.950 --> 00:29:51.390 cannabis plant with all these
NOTE Confidence: 0.99370813
00:29:51.390 --> 00:29:52.910 different chemicals that exist in
NOTE Confidence: 0.99370813

00:29:52.910 --> 00:29:54.590 the cannabis plant, there's been
NOTE Confidence: 0.99370813

00:29:54.590 --> 00:29:56.190 great interest in understanding how
NOTE Confidence: 0.99370813

00:29:56.190 --> 00:29:58.049 these constituents might work together.
NOTE Confidence: 0.9849825

00:29:58.414 --> 00:29:59.774 And as you know, at
NOTE Confidence: 0.9849825

00:29:59.774 --> 00:30:00.975 at Yale, you know, there's
NOTE Confidence: 0.9849825

00:30:00.975 --> 00:30:01.695 been a lot of work
NOTE Confidence: 0.9849825

00:30:01.695 --> 00:30:02.895 in this area that there
NOTE Confidence: 0.9849825

00:30:02.895 --> 00:30:04.575 is evidence that CBD might
NOTE Confidence: 0.9849825

00:30:04.575 --> 00:30:06.255 reduce some of THC's negative
NOTE Confidence: 0.9849825

00:30:06.255 --> 00:30:07.615 effects, although there's a lot
NOTE Confidence: 0.9849825

00:30:07.615 --> 00:30:08.895 of work coming out now
NOTE Confidence: 0.9849825

00:30:08.895 --> 00:30:09.794 about the pharmacokinetic
NOTE Confidence: 0.9992676

00:30:10.174 --> 00:30:11.475 interaction of the two.
NOTE Confidence: 0.9732108

00:30:11.880 --> 00:30:13.320 And here, we are interested
NOTE Confidence: 0.9732108

00:30:13.320 --> 00:30:15.000 in specifically looking at CBG.
NOTE Confidence: 0.9732108

00:30:15.000 --> 00:30:15.960 Is it is there a

NOTE Confidence: 0.9732108

00:30:15.960 --> 00:30:17.720 potential here for CBG to

NOTE Confidence: 0.9732108

00:30:17.720 --> 00:30:19.000 reduce some of the adverse

NOTE Confidence: 0.9732108

00:30:19.000 --> 00:30:19.740 effects of

NOTE Confidence: 0.80249023

00:30:20.120 --> 00:30:20.620 THC?

NOTE Confidence: 0.94398195

00:30:21.240 --> 00:30:22.600 CBG reduce the adverse effects

NOTE Confidence: 0.94398195

00:30:22.600 --> 00:30:24.380 of THC while also improving

NOTE Confidence: 0.94398195

00:30:24.440 --> 00:30:26.695 the, therapeutic profile of THC

NOTE Confidence: 0.94398195

00:30:26.695 --> 00:30:28.715 by enhancing the therapeutic effects.

NOTE Confidence: 0.96902585

00:30:29.095 --> 00:30:30.695 And so here's cannabagiol and

NOTE Confidence: 0.96902585

00:30:30.695 --> 00:30:31.895 delta nine THC. I'm not

NOTE Confidence: 0.96902585

00:30:31.895 --> 00:30:32.934 gonna go into the medicinal

NOTE Confidence: 0.96902585

00:30:32.934 --> 00:30:34.375 chemistry of this because I

NOTE Confidence: 0.96902585

00:30:34.375 --> 00:30:35.835 am definitely not a chemist.

NOTE Confidence: 0.99624026

00:30:36.135 --> 00:30:37.174 But for those in the

NOTE Confidence: 0.99624026

00:30:37.174 --> 00:30:38.934 audience, hopefully, you appreciate that

NOTE Confidence: 0.99624026

00:30:38.934 --> 00:30:40.395 I put the structures here.
NOTE Confidence: 0.99514675

00:30:41.180 --> 00:30:41.820 When we look at the
NOTE Confidence: 0.99514675

00:30:41.820 --> 00:30:44.160 preclinical evidence related to CBG,
NOTE Confidence: 0.99514675

00:30:44.380 --> 00:30:44.880 I
NOTE Confidence: 0.99161786

00:30:45.740 --> 00:30:46.800 I mentioned before,
NOTE Confidence: 0.94344485

00:30:47.260 --> 00:30:49.280 the literature demonstrating that CBG
NOTE Confidence: 0.94344485

00:30:49.340 --> 00:30:51.500 lacks this THC like cycle
NOTE Confidence: 0.94344485

00:30:51.500 --> 00:30:53.180 activity in animal models, and
NOTE Confidence: 0.94344485

00:30:53.180 --> 00:30:54.559 so this is an example.
NOTE Confidence: 0.9700928

00:30:54.904 --> 00:30:56.605 Catalpsy is a prototypical
NOTE Confidence: 0.9116211

00:30:57.065 --> 00:30:58.044 behave behavior
NOTE Confidence: 0.95047367

00:30:58.825 --> 00:31:00.664 of THC and other drugs
NOTE Confidence: 0.95047367

00:31:00.664 --> 00:31:01.945 that act similarly at the
NOTE Confidence: 0.95047367

00:31:01.945 --> 00:31:03.784 CB1 receptor at THC. And
NOTE Confidence: 0.95047367

00:31:03.784 --> 00:31:04.505 you can see in the
NOTE Confidence: 0.95047367

00:31:04.505 --> 00:31:06.365 blue line with CBG that

NOTE Confidence: 0.95047367
00:31:06.585 --> 00:31:08.524 CBG does not produce catalepsy,
NOTE Confidence: 0.95888674
00:31:08.825 --> 00:31:10.264 but THC in the black
NOTE Confidence: 0.95888674
00:31:10.470 --> 00:31:11.750 well, THC and a THC
NOTE Confidence: 0.95888674
00:31:11.750 --> 00:31:12.950 like substance, c p five
NOTE Confidence: 0.95888674
00:31:12.950 --> 00:31:14.309 five nine four zero, which
NOTE Confidence: 0.95888674
00:31:14.309 --> 00:31:15.770 is this THC like substance,
NOTE Confidence: 0.9971029
00:31:16.230 --> 00:31:17.450 does produce catalepsy.
NOTE Confidence: 0.9986747
00:31:18.789 --> 00:31:19.909 And when you look at
NOTE Confidence: 0.9986747
00:31:19.909 --> 00:31:20.650 the antinociceptive
NOTE Confidence: 0.9346517
00:31:21.350 --> 00:31:22.570 effects, so that's
NOTE Confidence: 0.9729004
00:31:23.095 --> 00:31:24.215 code for saying the pain
NOTE Confidence: 0.9729004
00:31:24.215 --> 00:31:26.315 relieving effects in animal models.
NOTE Confidence: 0.98642987
00:31:26.935 --> 00:31:27.895 Again, you could see that
NOTE Confidence: 0.98642987
00:31:27.895 --> 00:31:29.655 THC like substance in the
NOTE Confidence: 0.98642987
00:31:29.655 --> 00:31:30.555 black circle.
NOTE Confidence: 0.9334606

00:31:31.095 --> 00:31:32.775 And the blue there in
NOTE Confidence: 0.9334606

00:31:32.775 --> 00:31:35.035 this particular assay, they demonstrated
NOTE Confidence: 0.9334606

00:31:35.175 --> 00:31:35.675 that
NOTE Confidence: 0.9893359

00:31:36.030 --> 00:31:38.850 CBG does have modest antinociceptive
NOTE Confidence: 0.986921

00:31:39.310 --> 00:31:40.750 effects. It doesn't reach the
NOTE Confidence: 0.986921

00:31:40.750 --> 00:31:42.670 magnitude of the CP compound,
NOTE Confidence: 0.986921

00:31:42.670 --> 00:31:43.630 but it does have,
NOTE Confidence: 0.9995117

00:31:44.510 --> 00:31:45.790 it does have modest effects
NOTE Confidence: 0.9995117

00:31:45.790 --> 00:31:46.290 there.
NOTE Confidence: 0.9965007

00:31:46.590 --> 00:31:47.730 There's also been,
NOTE Confidence: 0.9662621

00:31:48.110 --> 00:31:49.630 literature in the animal model
NOTE Confidence: 0.9662621

00:31:49.630 --> 00:31:51.315 showing that it can improve
NOTE Confidence: 0.9662621

00:31:51.315 --> 00:31:52.915 appetite. And remember, what we're
NOTE Confidence: 0.9662621

00:31:52.915 --> 00:31:54.755 interested in here is a
NOTE Confidence: 0.9662621

00:31:54.755 --> 00:31:55.255 potential
NOTE Confidence: 0.99108124

00:31:56.275 --> 00:31:57.875 cannabinoid based therapeutic that can

NOTE Confidence: 0.99108124
00:31:57.875 --> 00:31:59.475 both improve appetite as well
NOTE Confidence: 0.99108124
00:31:59.475 --> 00:32:00.755 as improve pain without the
NOTE Confidence: 0.99108124
00:32:00.755 --> 00:32:02.195 adverse effects. And so here
NOTE Confidence: 0.99108124
00:32:02.195 --> 00:32:03.794 in animal models, it seems
NOTE Confidence: 0.99108124
00:32:03.794 --> 00:32:05.155 like CBG might be one
NOTE Confidence: 0.99108124
00:32:05.155 --> 00:32:05.815 of those.
NOTE Confidence: 1
00:32:06.195 --> 00:32:06.330 And
NOTE Confidence: 0.9938151
00:32:07.130 --> 00:32:08.010 then even though we weren't
NOTE Confidence: 0.9938151
00:32:08.010 --> 00:32:09.149 looking at this initially,
NOTE Confidence: 0.9943673
00:32:09.610 --> 00:32:11.610 there's evidence demonstrating that CBG
NOTE Confidence: 0.9943673
00:32:11.610 --> 00:32:13.289 might have anxiolytic effects. And
NOTE Confidence: 0.9943673
00:32:13.289 --> 00:32:14.429 so this was demonstrated
NOTE Confidence: 0.9672708
00:32:14.970 --> 00:32:16.570 in a recent study in
NOTE Confidence: 0.9672708
00:32:16.570 --> 00:32:18.010 the elevated plus maze, which
NOTE Confidence: 0.9672708
00:32:18.010 --> 00:32:19.610 is a animal model that
NOTE Confidence: 0.9672708

00:32:19.610 --> 00:32:20.169 can measure,
NOTE Confidence: 0.98996645

00:32:20.755 --> 00:32:22.755 anxiogenic and anxiolytic effects of
NOTE Confidence: 0.98996645

00:32:22.755 --> 00:32:23.715 drugs. And what you can
NOTE Confidence: 0.98996645

00:32:23.715 --> 00:32:24.375 see here
NOTE Confidence: 0.9759766

00:32:24.755 --> 00:32:26.615 with increasing doses of CBG,
NOTE Confidence: 0.97924805

00:32:27.315 --> 00:32:28.455 there was a anxiolytic
NOTE Confidence: 0.9863281

00:32:28.914 --> 00:32:29.414 response,
NOTE Confidence: 0.9806593

00:32:30.195 --> 00:32:32.375 demonstrating a signal that potentially
NOTE Confidence: 0.9806593

00:32:32.674 --> 00:32:34.780 CBG might be helpful in
NOTE Confidence: 0.9806593

00:32:34.780 --> 00:32:36.620 reducing anxiety in humans if
NOTE Confidence: 0.9806593

00:32:36.620 --> 00:32:37.840 it was if it's translated
NOTE Confidence: 0.9806593

00:32:37.900 --> 00:32:39.260 as such. I won't get
NOTE Confidence: 0.9806593

00:32:39.260 --> 00:32:40.780 much into mechanism of action,
NOTE Confidence: 0.9806593

00:32:40.780 --> 00:32:41.820 but I will say that
NOTE Confidence: 0.9806593

00:32:41.820 --> 00:32:43.180 CBG has a very different
NOTE Confidence: 0.9806593

00:32:43.180 --> 00:32:43.680 pharmacology

NOTE Confidence: 0.97133094
00:32:44.380 --> 00:32:45.500 than THC, and we can
NOTE Confidence: 0.97133094
00:32:45.500 --> 00:32:46.380 talk a little bit about
NOTE Confidence: 0.97133094
00:32:46.380 --> 00:32:47.260 that if there are audience
NOTE Confidence: 0.97133094
00:32:47.260 --> 00:32:48.540 members who are interested in
NOTE Confidence: 0.97133094
00:32:48.540 --> 00:32:49.040 that.
NOTE Confidence: 0.98431754
00:32:49.934 --> 00:32:51.294 When we first started out
NOTE Confidence: 0.98431754
00:32:51.294 --> 00:32:52.674 this study, and this was
NOTE Confidence: 0.98431754
00:32:52.735 --> 00:32:53.775 a grant that we wrote
NOTE Confidence: 0.98431754
00:32:53.775 --> 00:32:54.515 in twenty
NOTE Confidence: 0.95026505
00:32:56.414 --> 00:32:58.015 twenty twenty, and I think
NOTE Confidence: 0.95026505
00:32:58.015 --> 00:32:59.054 it was in twenty twenty
NOTE Confidence: 0.95026505
00:32:59.054 --> 00:33:00.095 one, we got funding, and
NOTE Confidence: 0.95026505
00:33:00.095 --> 00:33:01.294 then it took forever as
NOTE Confidence: 0.95026505
00:33:01.294 --> 00:33:02.575 you'll see to to get
NOTE Confidence: 0.95026505
00:33:02.575 --> 00:33:03.395 off the ground.
NOTE Confidence: 0.99934894

00:33:03.790 --> 00:33:05.070 At that time, there was
NOTE Confidence: 0.99934894

00:33:05.070 --> 00:33:05.570 really
NOTE Confidence: 0.93758136

00:33:05.870 --> 00:33:07.090 nothing in humans,
NOTE Confidence: 0.9982605

00:33:09.070 --> 00:33:10.350 very little in humans, I
NOTE Confidence: 0.9982605

00:33:10.350 --> 00:33:11.730 should say, that
NOTE Confidence: 0.9898763

00:33:12.190 --> 00:33:14.210 investigated the effects of CBG.
NOTE Confidence: 0.9895207

00:33:14.670 --> 00:33:15.550 But we knew at the
NOTE Confidence: 0.9895207

00:33:15.550 --> 00:33:17.310 time that CBG naturally occurred
NOTE Confidence: 0.9895207

00:33:17.310 --> 00:33:18.850 in cannabis at
NOTE Confidence: 0.98080444

00:33:19.235 --> 00:33:21.555 at measurable levels that we
NOTE Confidence: 0.98080444

00:33:21.555 --> 00:33:23.155 thought concentrations would be high
NOTE Confidence: 0.98080444

00:33:23.155 --> 00:33:25.155 enough to likely have some
NOTE Confidence: 0.98080444

00:33:25.155 --> 00:33:25.655 effect.
NOTE Confidence: 0.98109215

00:33:26.835 --> 00:33:27.955 And the doses that we
NOTE Confidence: 0.98109215

00:33:27.955 --> 00:33:29.075 chose for this study were
NOTE Confidence: 0.98109215

00:33:29.075 --> 00:33:30.755 really guided based off of

NOTE Confidence: 0.98109215
00:33:30.755 --> 00:33:32.435 what people are exposed to.
NOTE Confidence: 0.98109215
00:33:32.435 --> 00:33:33.635 Because, again, this was a
NOTE Confidence: 0.98109215
00:33:33.635 --> 00:33:34.695 study that was
NOTE Confidence: 0.98583984
00:33:35.130 --> 00:33:35.630 developed,
NOTE Confidence: 0.99780273
00:33:36.090 --> 00:33:38.270 before we knew about any,
NOTE Confidence: 0.9955759
00:33:39.370 --> 00:33:40.970 safety profile of CBG in
NOTE Confidence: 0.9955759
00:33:40.970 --> 00:33:42.490 humans. And so when we
NOTE Confidence: 0.9955759
00:33:42.490 --> 00:33:43.690 submitted the protocol to the
NOTE Confidence: 0.9955759
00:33:43.690 --> 00:33:44.810 FDA, what we did was
NOTE Confidence: 0.9955759
00:33:44.810 --> 00:33:46.170 we demonstrated that we were
NOTE Confidence: 0.9955759
00:33:46.170 --> 00:33:47.965 going to be exposing participants
NOTE Confidence: 0.9955759
00:33:48.265 --> 00:33:49.485 to CBG concentrations
NOTE Confidence: 0.9989347
00:33:49.945 --> 00:33:51.225 that they would normally be
NOTE Confidence: 0.9989347
00:33:51.225 --> 00:33:52.765 exposed to when they're using
NOTE Confidence: 0.9989347
00:33:52.825 --> 00:33:53.325 cannabis.
NOTE Confidence: 0.9873047

00:33:54.825 --> 00:33:55.945 So we did this study.
NOTE Confidence: 0.9873047

00:33:55.945 --> 00:33:57.405 It was a controlled environment,
NOTE Confidence: 0.94013673

00:33:57.865 --> 00:33:59.705 double blind placebo controlled. Again,
NOTE Confidence: 0.94013673

00:33:59.705 --> 00:34:01.225 we recruited people who use
NOTE Confidence: 0.94013673

00:34:01.225 --> 00:34:03.300 cannabis. Although they were occasional
NOTE Confidence: 0.9398552

00:34:04.160 --> 00:34:05.920 they used cannabis occasionally, so
NOTE Confidence: 0.9398552

00:34:05.920 --> 00:34:07.440 they weren't using cannabis every
NOTE Confidence: 0.9398552

00:34:07.440 --> 00:34:08.480 day. It was usually about
NOTE Confidence: 0.9398552

00:34:08.480 --> 00:34:09.600 once a week. I think
NOTE Confidence: 0.9398552

00:34:09.600 --> 00:34:10.719 I have the data here.
NOTE Confidence: 0.9398552

00:34:10.719 --> 00:34:11.680 And we were interested in
NOTE Confidence: 0.9398552

00:34:11.680 --> 00:34:12.739 looking at the therapeutic
NOTE Confidence: 0.98333186

00:34:13.040 --> 00:34:14.660 and adverse effects. And so
NOTE Confidence: 0.98333186

00:34:14.825 --> 00:34:15.945 what we did here, again,
NOTE Confidence: 0.98333186

00:34:15.945 --> 00:34:17.065 because this was the path
NOTE Confidence: 0.98333186

00:34:17.065 --> 00:34:18.585 of least resistance, people are

NOTE Confidence: 0.98333186

00:34:18.585 --> 00:34:20.265 usually exposed to CBG when

NOTE Confidence: 0.98333186

00:34:20.265 --> 00:34:22.185 they're inhaling cannabis. Most people

NOTE Confidence: 0.98333186

00:34:22.185 --> 00:34:23.245 inhale their cannabis.

NOTE Confidence: 0.9307696

00:34:24.025 --> 00:34:24.985 And so we were recruiting

NOTE Confidence: 0.9307696

00:34:24.985 --> 00:34:26.265 people who were using cannabis.

NOTE Confidence: 0.9307696

00:34:26.265 --> 00:34:28.219 And so we use inhaled

NOTE Confidence: 0.9307696

00:34:28.360 --> 00:34:30.200 mode of administration using this

NOTE Confidence: 0.9307696

00:34:30.200 --> 00:34:31.640 vaporizer here, the stores at

NOTE Confidence: 0.9307696

00:34:31.640 --> 00:34:32.860 Embecol Vaporizer.

NOTE Confidence: 0.9730957

00:34:33.640 --> 00:34:34.600 And so as many of

NOTE Confidence: 0.9730957

00:34:34.600 --> 00:34:35.800 you know who are working

NOTE Confidence: 0.9730957

00:34:35.800 --> 00:34:37.400 with THC and other other

NOTE Confidence: 0.9730957

00:34:37.400 --> 00:34:38.860 types of products, you know,

NOTE Confidence: 0.9730957

00:34:39.000 --> 00:34:40.520 the study was is these

NOTE Confidence: 0.9730957

00:34:40.520 --> 00:34:42.360 studies are a regulatory nightmare

NOTE Confidence: 0.9730957

00:34:42.360 --> 00:34:43.855 regardless of whether or not
NOTE Confidence: 0.9730957

00:34:43.855 --> 00:34:46.015 cannabis becomes marijuana becomes schedule
NOTE Confidence: 0.9730957

00:34:46.015 --> 00:34:47.635 three. It's still very difficult,
NOTE Confidence: 0.99509275

00:34:48.575 --> 00:34:50.035 for a number of reasons,
NOTE Confidence: 0.99509275

00:34:50.255 --> 00:34:51.555 but we got through it.
NOTE Confidence: 0.94012696

00:34:52.015 --> 00:34:53.535 And so the primary goal
NOTE Confidence: 0.94012696

00:34:53.535 --> 00:34:55.135 here, again, was to look
NOTE Confidence: 0.94012696

00:34:55.135 --> 00:34:57.155 specifically at the potential analgesic
NOTE Confidence: 0.94012696

00:34:57.295 --> 00:34:58.920 effects as well as appetite
NOTE Confidence: 0.94012696

00:34:58.920 --> 00:35:00.940 stimulating effects based off of
NOTE Confidence: 0.9464497

00:35:01.239 --> 00:35:02.440 how we built this study.
NOTE Confidence: 0.9464497

00:35:02.440 --> 00:35:03.560 This is we were interested
NOTE Confidence: 0.9464497

00:35:03.560 --> 00:35:05.719 in understanding, does CBG alone,
NOTE Confidence: 0.9464497

00:35:05.719 --> 00:35:07.640 like the preclinical work, could
NOTE Confidence: 0.9464497

00:35:07.640 --> 00:35:09.480 it help to reduce pain
NOTE Confidence: 0.9464497

00:35:09.480 --> 00:35:11.400 and improve appetite, and might

NOTE Confidence: 0.9464497
00:35:11.400 --> 00:35:13.079 it interact with THC in
NOTE Confidence: 0.9464497
00:35:13.079 --> 00:35:13.695 a beneficial way?
NOTE Confidence: 0.9555631
00:35:17.775 --> 00:35:19.715 Cognitive impairing effects of THC.
NOTE Confidence: 0.9555631
00:35:19.855 --> 00:35:21.215 And, also, does CBG have
NOTE Confidence: 0.9555631
00:35:21.215 --> 00:35:22.975 any intoxicating effects on its
NOTE Confidence: 0.9555631
00:35:22.975 --> 00:35:24.015 own? Right? Based off of
NOTE Confidence: 0.9555631
00:35:24.015 --> 00:35:25.535 the preclinical literature, it would
NOTE Confidence: 0.9555631
00:35:25.535 --> 00:35:27.135 suggest not. But, you know,
NOTE Confidence: 0.9555631
00:35:27.135 --> 00:35:28.255 we we really wanted to
NOTE Confidence: 0.9555631
00:35:28.255 --> 00:35:28.950 test that.
NOTE Confidence: 0.9421997
00:35:29.989 --> 00:35:31.270 So while we were doing
NOTE Confidence: 0.9421997
00:35:31.270 --> 00:35:32.230 this study, and I see
NOTE Confidence: 0.9421997
00:35:32.230 --> 00:35:33.989 that Carrie, doctor Cutler is
NOTE Confidence: 0.9421997
00:35:33.989 --> 00:35:34.489 here,
NOTE Confidence: 0.9797551
00:35:35.030 --> 00:35:36.150 there was a survey that
NOTE Confidence: 0.9797551

00:35:36.150 --> 00:35:37.430 was launched of people who
NOTE Confidence: 0.9797551

00:35:37.430 --> 00:35:38.570 were using CBG.
NOTE Confidence: 0.99928635

00:35:39.109 --> 00:35:40.550 And the number one reason
NOTE Confidence: 0.99928635

00:35:40.550 --> 00:35:41.930 why people were using CBG
NOTE Confidence: 0.99928635

00:35:42.150 --> 00:35:43.369 was for anxiety
NOTE Confidence: 0.9864909

00:35:43.670 --> 00:35:44.594 followed by chronic
NOTE Confidence: 0.9984538

00:35:45.155 --> 00:35:46.915 pain. And so following that
NOTE Confidence: 0.9984538

00:35:46.915 --> 00:35:47.415 survey,
NOTE Confidence: 0.9878007

00:35:47.955 --> 00:35:49.555 doctor Cutler did a field
NOTE Confidence: 0.9878007

00:35:49.555 --> 00:35:51.075 study where she compared oral
NOTE Confidence: 0.9878007

00:35:51.075 --> 00:35:52.355 CBG, and I'm hoping I'm
NOTE Confidence: 0.9878007

00:35:52.355 --> 00:35:53.795 getting these doses right, twenty
NOTE Confidence: 0.9878007

00:35:53.795 --> 00:35:54.295 milligrams
NOTE Confidence: 0.991333

00:35:54.755 --> 00:35:55.575 versus placebo.
NOTE Confidence: 0.99902344

00:35:56.675 --> 00:35:57.175 And
NOTE Confidence: 0.9915314

00:35:57.489 --> 00:35:59.170 the study our study launched,

NOTE Confidence: 0.9915314

00:35:59.170 --> 00:36:00.550 but the field was evolving.

NOTE Confidence: 0.9915314

00:36:00.690 --> 00:36:02.550 And what that study particularly

NOTE Confidence: 0.9915314

00:36:02.770 --> 00:36:03.270 found

NOTE Confidence: 0.9597656

00:36:03.650 --> 00:36:05.250 was that in a naturalist

NOTE Confidence: 0.9597656

00:36:05.330 --> 00:36:07.570 semi naturalistic setting, when people

NOTE Confidence: 0.9597656

00:36:07.570 --> 00:36:09.030 were exposed to a stressor,

NOTE Confidence: 0.99232996

00:36:09.695 --> 00:36:10.895 what you can see is

NOTE Confidence: 0.99232996

00:36:10.895 --> 00:36:12.835 that CBG, the red line,

NOTE Confidence: 0.99232996

00:36:13.055 --> 00:36:15.375 reduced anxiety ratings compared to

NOTE Confidence: 0.99232996

00:36:15.375 --> 00:36:15.875 placebo.

NOTE Confidence: 0.99637276

00:36:16.495 --> 00:36:17.614 And so this kind of

NOTE Confidence: 0.99637276

00:36:17.614 --> 00:36:18.835 shifted our

NOTE Confidence: 0.9457622

00:36:19.695 --> 00:36:21.215 somewhat shifted our focus, and

NOTE Confidence: 0.9457622

00:36:21.215 --> 00:36:22.094 you'll see a little bit

NOTE Confidence: 0.9457622

00:36:22.094 --> 00:36:23.167 why it really helped to

NOTE Confidence: 0.9457622

00:36:23.167 --> 00:36:24.100 shift shift our focus.
NOTE Confidence: 0.9692708

00:36:24.719 --> 00:36:25.920 But we decided to look
NOTE Confidence: 0.9692708

00:36:25.920 --> 00:36:26.880 at well, we were already
NOTE Confidence: 0.9692708

00:36:26.880 --> 00:36:29.140 looking at, anxiety related behaviors,
NOTE Confidence: 0.9708374

00:36:30.080 --> 00:36:31.280 just because we always ask
NOTE Confidence: 0.9708374

00:36:31.280 --> 00:36:32.480 about mood ratings. And so
NOTE Confidence: 0.9708374

00:36:32.480 --> 00:36:33.760 we always include a a
NOTE Confidence: 0.9708374

00:36:33.760 --> 00:36:35.540 couple of questions related to
NOTE Confidence: 0.9998372

00:36:35.840 --> 00:36:37.040 whether or not people feel
NOTE Confidence: 0.9998372

00:36:37.040 --> 00:36:37.540 anxious.
NOTE Confidence: 0.9572347

00:36:37.944 --> 00:36:39.785 Okay? So we included anxiety
NOTE Confidence: 0.9572347

00:36:39.785 --> 00:36:40.285 ratings.
NOTE Confidence: 0.96710324

00:36:40.664 --> 00:36:41.864 For here here, this is
NOTE Confidence: 0.96710324

00:36:41.864 --> 00:36:42.825 an example of the cold
NOTE Confidence: 0.96710324

00:36:42.825 --> 00:36:44.025 presser test. Again, one of
NOTE Confidence: 0.96710324

00:36:44.025 --> 00:36:45.785 our primary outcomes was looking

NOTE Confidence: 0.96710324
00:36:45.785 --> 00:36:46.905 at pain response, and we
NOTE Confidence: 0.96710324
00:36:46.905 --> 00:36:47.944 use a cold pressor test
NOTE Confidence: 0.96710324
00:36:47.944 --> 00:36:49.724 here. I describe pain threshold
NOTE Confidence: 0.96710324
00:36:49.800 --> 00:36:51.000 and pain tolerance. We see
NOTE Confidence: 0.96710324
00:36:51.000 --> 00:36:52.440 here that the experimenter is
NOTE Confidence: 0.96710324
00:36:52.440 --> 00:36:53.560 the same sex as the
NOTE Confidence: 0.96710324
00:36:53.560 --> 00:36:54.060 participant,
NOTE Confidence: 0.994222
00:36:54.680 --> 00:36:56.300 which is helpful in controlling
NOTE Confidence: 0.994222
00:36:56.440 --> 00:36:56.940 for,
NOTE Confidence: 0.96655273
00:36:57.320 --> 00:36:59.580 gender or sex specific responses.
NOTE Confidence: 0.9911691
00:37:00.200 --> 00:37:01.800 And the reason why we
NOTE Confidence: 0.9911691
00:37:01.800 --> 00:37:03.000 use the cold pressor test
NOTE Confidence: 0.9911691
00:37:03.000 --> 00:37:04.280 is because it has predictive
NOTE Confidence: 0.9911691
00:37:04.280 --> 00:37:06.654 validity specific for specifically for
NOTE Confidence: 0.9911691
00:37:06.654 --> 00:37:07.855 therapeutics that are helpful for
NOTE Confidence: 0.9911691

00:37:07.855 --> 00:37:09.555 chronic pain. So even though
NOTE Confidence: 0.9911691

00:37:09.614 --> 00:37:11.234 it's an acute painful stimulus,
NOTE Confidence: 0.9760254

00:37:12.174 --> 00:37:13.775 therapeutics that work specifically for
NOTE Confidence: 0.9760254

00:37:13.775 --> 00:37:15.454 acute pain don't necessarily provide
NOTE Confidence: 0.9760254

00:37:15.454 --> 00:37:16.974 a signal here. And what's
NOTE Confidence: 0.9760254

00:37:16.974 --> 00:37:18.414 also nice about this test
NOTE Confidence: 0.9760254

00:37:18.414 --> 00:37:19.614 is that every person is
NOTE Confidence: 0.9760254

00:37:19.614 --> 00:37:20.730 their own control. So, for
NOTE Confidence: 0.9760254

00:37:20.730 --> 00:37:22.510 example, people have very different
NOTE Confidence: 0.9975142

00:37:22.810 --> 00:37:24.250 ranges of pain tolerance, but
NOTE Confidence: 0.9975142

00:37:24.250 --> 00:37:26.250 we're really comparing every human
NOTE Confidence: 0.9975142

00:37:26.250 --> 00:37:26.750 being
NOTE Confidence: 0.94157714

00:37:27.050 --> 00:37:28.750 to their pre drug administration
NOTE Confidence: 0.94157714

00:37:28.890 --> 00:37:30.250 pain special and pain tolerance
NOTE Confidence: 0.94157714

00:37:30.250 --> 00:37:31.630 to their post drug administration
NOTE Confidence: 0.94157714

00:37:31.770 --> 00:37:33.150 pain special and pain tolerance.

NOTE Confidence: 0.94157714
00:37:33.165 --> 00:37:34.364 And we're also comparing their
NOTE Confidence: 0.94157714
00:37:34.364 --> 00:37:36.145 response to a placebo condition
NOTE Confidence: 0.97474504
00:37:36.445 --> 00:37:38.045 as well as different doses
NOTE Confidence: 0.97474504
00:37:38.045 --> 00:37:39.505 of CBG and THC.
NOTE Confidence: 0.9763031
00:37:40.045 --> 00:37:41.005 And during the course of
NOTE Confidence: 0.9763031
00:37:41.005 --> 00:37:42.125 these sessions, we just ask
NOTE Confidence: 0.9763031
00:37:42.125 --> 00:37:43.405 people on a visual analog
NOTE Confidence: 0.9763031
00:37:43.405 --> 00:37:43.905 scale,
NOTE Confidence: 0.9779424
00:37:44.205 --> 00:37:45.485 please rate how high you
NOTE Confidence: 0.9779424
00:37:45.485 --> 00:37:47.109 feel. Please tell us how
NOTE Confidence: 0.9779424
00:37:47.109 --> 00:37:48.070 good of a drug effect
NOTE Confidence: 0.9779424
00:37:48.070 --> 00:37:49.030 you feel from not at
NOTE Confidence: 0.9779424
00:37:49.030 --> 00:37:49.930 all too extremely.
NOTE Confidence: 0.95262694
00:37:50.310 --> 00:37:51.590 Tell us how hungry you
NOTE Confidence: 0.95262694
00:37:51.590 --> 00:37:52.790 are because we were interested
NOTE Confidence: 0.95262694

00:37:52.790 --> 00:37:54.310 in appetite, and tell us
NOTE Confidence: 0.95262694

00:37:54.310 --> 00:37:55.830 how anxious you feel from
NOTE Confidence: 0.95262694

00:37:55.830 --> 00:37:57.050 not at all too extremely.
NOTE Confidence: 0.9574219

00:37:58.150 --> 00:37:59.989 We were interested in in,
NOTE Confidence: 0.9841797

00:38:00.469 --> 00:38:02.864 appetite, and so we measured,
NOTE Confidence: 0.9907471

00:38:03.165 --> 00:38:05.025 caloric intake and macronutrients,
NOTE Confidence: 0.9773837

00:38:05.885 --> 00:38:07.165 and everything like that and
NOTE Confidence: 0.9773837

00:38:07.165 --> 00:38:09.485 associated with, subjective ratings of
NOTE Confidence: 0.9773837

00:38:09.485 --> 00:38:09.985 hunger.
NOTE Confidence: 0.97766113

00:38:10.364 --> 00:38:11.245 So this was a nine
NOTE Confidence: 0.97766113

00:38:11.245 --> 00:38:12.285 session study. It was a
NOTE Confidence: 0.97766113

00:38:12.285 --> 00:38:13.165 little bit of a beast
NOTE Confidence: 0.97766113

00:38:13.165 --> 00:38:14.525 to do in Los Angeles
NOTE Confidence: 0.97766113

00:38:14.525 --> 00:38:16.364 where public transportation isn't that
NOTE Confidence: 0.97766113

00:38:16.364 --> 00:38:16.830 great.
NOTE Confidence: 0.96276855

00:38:17.230 --> 00:38:18.590 But we had participants come

NOTE Confidence: 0.96276855
00:38:18.590 --> 00:38:19.969 in for eight hour sessions.
NOTE Confidence: 0.984375
00:38:20.670 --> 00:38:21.650 And across,
NOTE Confidence: 0.9796631
00:38:22.190 --> 00:38:23.710 nine different sessions, the dose
NOTE Confidence: 0.9796631
00:38:23.710 --> 00:38:25.570 order was randomized, but we,
NOTE Confidence: 0.9718017
00:38:26.030 --> 00:38:27.790 had people who are exposed
NOTE Confidence: 0.9718017
00:38:27.790 --> 00:38:29.230 to everybody was exposed to
NOTE Confidence: 0.9718017
00:38:29.230 --> 00:38:30.450 a low dose of CBG,
NOTE Confidence: 0.9718017
00:38:30.590 --> 00:38:31.950 five milligrams, a higher dose
NOTE Confidence: 0.9718017
00:38:31.950 --> 00:38:33.285 of CBG, fifteen milligrams,
NOTE Confidence: 0.97098386
00:38:33.825 --> 00:38:34.805 a low dose of THC,
NOTE Confidence: 0.97098386
00:38:34.864 --> 00:38:35.925 a higher dose of THC,
NOTE Confidence: 0.97098386
00:38:36.065 --> 00:38:37.505 and then the combinations. Again,
NOTE Confidence: 0.97098386
00:38:37.505 --> 00:38:39.905 this was all done, through,
NOTE Confidence: 0.8664958
00:38:40.625 --> 00:38:41.825 through the sores and bicl
NOTE Confidence: 0.8664958
00:38:41.825 --> 00:38:42.325 vaporizer.
NOTE Confidence: 0.88509697

00:38:43.025 --> 00:38:44.485 And we looked at appetite.
NOTE Confidence: 0.88509697

00:38:44.545 --> 00:38:46.245 We looked at pain, anxiety,
NOTE Confidence: 0.88509697

00:38:46.385 --> 00:38:48.080 intoxication, and abuse liability.
NOTE Confidence: 0.98074776

00:38:48.460 --> 00:38:49.340 And today, I'll be talking
NOTE Confidence: 0.98074776

00:38:49.340 --> 00:38:50.080 about cardiovascular
NOTE Confidence: 0.98607624

00:38:50.540 --> 00:38:52.480 effects, which I don't necessarily
NOTE Confidence: 0.98607624

00:38:52.620 --> 00:38:54.220 always talk about, but, is
NOTE Confidence: 0.98607624

00:38:54.220 --> 00:38:56.060 relevant here. And we also
NOTE Confidence: 0.98607624

00:38:56.060 --> 00:38:57.260 collected blood to look at
NOTE Confidence: 0.98607624

00:38:57.260 --> 00:38:57.760 pharmacokinetics
NOTE Confidence: 0.9838596

00:38:58.140 --> 00:38:58.860 to see if there's a
NOTE Confidence: 0.9838596

00:38:58.860 --> 00:38:59.360 pharmacokinetic
NOTE Confidence: 0.9995117

00:38:59.660 --> 00:39:01.035 interaction between the two.
NOTE Confidence: 0.98446655

00:39:01.515 --> 00:39:02.635 And so the question here
NOTE Confidence: 0.98446655

00:39:02.635 --> 00:39:03.855 was, does CBG
NOTE Confidence: 0.7937012

00:39:04.234 --> 00:39:04.734 alone,

NOTE Confidence: 0.9996745
00:39:05.114 --> 00:39:06.174 does it decrease
NOTE Confidence: 0.9781494
00:39:06.474 --> 00:39:07.934 pain and increase appetite?
NOTE Confidence: 0.95960414
00:39:08.555 --> 00:39:10.575 Might it enhance THC analgesic
NOTE Confidence: 0.95960414
00:39:10.714 --> 00:39:12.155 effects, or might it reduce
NOTE Confidence: 0.95960414
00:39:12.155 --> 00:39:13.535 THC's adverse effects?
NOTE Confidence: 0.92972237
00:39:14.075 --> 00:39:15.755 And here specifically related to
NOTE Confidence: 0.92972237
00:39:15.755 --> 00:39:16.575 abuse liability.
NOTE Confidence: 0.9777832
00:39:17.010 --> 00:39:17.750 And then,
NOTE Confidence: 0.97449154
00:39:18.770 --> 00:39:19.890 we decided to also look
NOTE Confidence: 0.97449154
00:39:19.890 --> 00:39:21.410 at anxiety. And so here's
NOTE Confidence: 0.97449154
00:39:21.410 --> 00:39:22.770 a picture of doctor Pabon.
NOTE Confidence: 0.97449154
00:39:22.770 --> 00:39:23.650 Many of you know her,
NOTE Confidence: 0.97449154
00:39:23.650 --> 00:39:24.850 and she's a postdoc who
NOTE Confidence: 0.97449154
00:39:24.850 --> 00:39:26.390 really spearheaded this study.
NOTE Confidence: 0.9683151
00:39:27.250 --> 00:39:28.790 So we had nineteen participants
NOTE Confidence: 0.9683151

00:39:28.850 --> 00:39:30.244 who who completed all sessions

NOTE Confidence: 0.9683151

00:39:30.385 --> 00:39:31.904 and pretty evenly split between

NOTE Confidence: 0.9683151

00:39:31.904 --> 00:39:33.025 males and females, and you

NOTE Confidence: 0.9683151

00:39:33.025 --> 00:39:33.825 can see that they were

NOTE Confidence: 0.9683151

00:39:33.825 --> 00:39:34.944 on the lighter end of

NOTE Confidence: 0.9683151

00:39:34.944 --> 00:39:36.005 cannabis use.

NOTE Confidence: 0.97654504

00:39:36.385 --> 00:39:37.744 Happy to answer any questions

NOTE Confidence: 0.97654504

00:39:37.744 --> 00:39:38.864 if there are any. I

NOTE Confidence: 0.97654504

00:39:38.864 --> 00:39:40.244 see that Laura. Okay.

NOTE Confidence: 0.9995117

00:39:41.969 --> 00:39:42.469 Okay.

NOTE Confidence: 0.9980469

00:39:43.090 --> 00:39:43.590 So,

NOTE Confidence: 0.980585

00:39:44.369 --> 00:39:45.650 again, we wanted to understand

NOTE Confidence: 0.980585

00:39:45.650 --> 00:39:47.810 CBG's effects by itself as

NOTE Confidence: 0.980585

00:39:47.810 --> 00:39:48.869 well as with THC.

NOTE Confidence: 0.99668145

00:39:49.410 --> 00:39:50.869 So the first question is,

NOTE Confidence: 0.99668145

00:39:50.930 --> 00:39:52.770 are people high? When you

NOTE Confidence: 0.99668145
00:39:52.770 --> 00:39:54.675 expose somebody to CBG, do
NOTE Confidence: 0.99668145
00:39:54.675 --> 00:39:55.575 they get high?
NOTE Confidence: 0.9773654
00:39:56.195 --> 00:39:57.955 This is a hallmark sign
NOTE Confidence: 0.9773654
00:39:57.955 --> 00:39:59.315 of THC as you'll see
NOTE Confidence: 0.9773654
00:39:59.315 --> 00:40:00.755 in a minute. And you'll
NOTE Confidence: 0.9773654
00:40:00.755 --> 00:40:01.875 see that on a scale
NOTE Confidence: 0.9773654
00:40:01.875 --> 00:40:02.915 of zero to one hundred,
NOTE Confidence: 0.9773654
00:40:02.915 --> 00:40:03.875 this just goes up to
NOTE Confidence: 0.9773654
00:40:03.875 --> 00:40:05.555 seventy five. CBG did not
NOTE Confidence: 0.9773654
00:40:05.555 --> 00:40:07.599 make people high. Okay? So
NOTE Confidence: 0.9773654
00:40:07.599 --> 00:40:08.719 didn't really didn't have an
NOTE Confidence: 0.9773654
00:40:08.719 --> 00:40:11.300 effect there, whereas THC did.
NOTE Confidence: 0.9773654
00:40:11.359 --> 00:40:12.340 THC alone,
NOTE Confidence: 0.8742676
00:40:12.800 --> 00:40:14.420 increased ratings of intoxication.
NOTE Confidence: 0.97088623
00:40:15.040 --> 00:40:16.239 And the question was, would
NOTE Confidence: 0.97088623

00:40:16.239 --> 00:40:17.780 CBG reduce it,
NOTE Confidence: 0.94763184
00:40:18.560 --> 00:40:20.260 because of some other,
NOTE Confidence: 0.9449056
00:40:21.145 --> 00:40:22.345 mechanism of action that's not
NOTE Confidence: 0.9449056
00:40:22.345 --> 00:40:23.145 at the c v one
NOTE Confidence: 0.9449056
00:40:23.145 --> 00:40:24.365 receptor necessarily.
NOTE Confidence: 0.99658203
00:40:25.145 --> 00:40:26.585 We found that CBG did
NOTE Confidence: 0.99658203
00:40:26.585 --> 00:40:27.485 not change,
NOTE Confidence: 0.9423828
00:40:27.945 --> 00:40:29.565 THC induced intoxication.
NOTE Confidence: 0.9757787
00:40:30.345 --> 00:40:31.225 Next, we want to know
NOTE Confidence: 0.9757787
00:40:31.225 --> 00:40:33.145 about abuse liability. Does THC
NOTE Confidence: 0.9757787
00:40:33.145 --> 00:40:34.585 have any abuse liability? Do
NOTE Confidence: 0.9757787
00:40:34.585 --> 00:40:35.965 people like the CBG?
NOTE Confidence: 0.99902344
00:40:36.540 --> 00:40:37.920 What we found was that
NOTE Confidence: 0.99902344
00:40:38.219 --> 00:40:38.719 people
NOTE Confidence: 0.9970703
00:40:39.340 --> 00:40:40.239 had no
NOTE Confidence: 0.95746994
00:40:41.340 --> 00:40:43.739 no subjective ratings associated with

NOTE Confidence: 0.95746994
00:40:43.739 --> 00:40:45.500 abuse liability of CBG at
NOTE Confidence: 0.95746994
00:40:45.500 --> 00:40:47.580 all. And so, similarly, for
NOTE Confidence: 0.95746994
00:40:47.580 --> 00:40:49.180 drug liking, take again, good
NOTE Confidence: 0.95746994
00:40:49.180 --> 00:40:50.300 effect. We really did not
NOTE Confidence: 0.95746994
00:40:50.300 --> 00:40:51.420 find a signal for the
NOTE Confidence: 0.95746994
00:40:51.420 --> 00:40:52.575 low dose of CBG or
NOTE Confidence: 0.95746994
00:40:52.575 --> 00:40:53.455 for this high dose of
NOTE Confidence: 0.95746994
00:40:53.455 --> 00:40:53.955 CBG.
NOTE Confidence: 0.9038086
00:40:54.415 --> 00:40:55.395 Unlike THC,
NOTE Confidence: 0.98760986
00:40:56.015 --> 00:40:57.135 where, again, even though these
NOTE Confidence: 0.98760986
00:40:57.135 --> 00:40:58.734 are occasional users, we found
NOTE Confidence: 0.98760986
00:40:58.734 --> 00:41:00.815 that people did report having
NOTE Confidence: 0.98760986
00:41:00.815 --> 00:41:02.275 a good effect from THC,
NOTE Confidence: 0.94677734
00:41:02.575 --> 00:41:04.734 and CBGs did not, mitigate
NOTE Confidence: 0.94677734
00:41:04.734 --> 00:41:05.395 that effect.
NOTE Confidence: 0.9590407

00:41:06.020 --> 00:41:07.300 So next, we wanted to
NOTE Confidence: 0.9590407

00:41:07.300 --> 00:41:08.980 understand if CBG would impact
NOTE Confidence: 0.9590407

00:41:08.980 --> 00:41:10.599 THC's analgesic effects.
NOTE Confidence: 0.98525167

00:41:10.980 --> 00:41:12.099 We found that CBG did
NOTE Confidence: 0.98525167

00:41:12.099 --> 00:41:13.219 not have any effect on
NOTE Confidence: 0.98525167

00:41:13.219 --> 00:41:14.819 its own, nor did it
NOTE Confidence: 0.98525167

00:41:14.819 --> 00:41:16.980 impact THC's effects. So we
NOTE Confidence: 0.98525167

00:41:16.980 --> 00:41:17.460 did not
NOTE Confidence: 0.9897664

00:41:18.099 --> 00:41:19.619 our hypothesis did not come
NOTE Confidence: 0.9897664

00:41:19.619 --> 00:41:20.819 out as planned for this
NOTE Confidence: 0.9897664

00:41:20.819 --> 00:41:21.880 particular endpoint.
NOTE Confidence: 0.99921876

00:41:22.475 --> 00:41:24.495 What about appetite related effects?
NOTE Confidence: 0.9795329

00:41:25.195 --> 00:41:26.235 What we found is that
NOTE Confidence: 0.9795329

00:41:26.235 --> 00:41:27.355 when we asked people how
NOTE Confidence: 0.9795329

00:41:27.355 --> 00:41:29.275 hungry they felt before they
NOTE Confidence: 0.9795329

00:41:29.275 --> 00:41:30.635 had access to food, so

NOTE Confidence: 0.9795329
00:41:30.635 --> 00:41:31.515 there was a period of
NOTE Confidence: 0.9795329
00:41:31.515 --> 00:41:32.315 time where they did not
NOTE Confidence: 0.9795329
00:41:32.315 --> 00:41:33.835 have access to food, and
NOTE Confidence: 0.9795329
00:41:33.835 --> 00:41:35.035 we found that ratings of
NOTE Confidence: 0.9795329
00:41:35.035 --> 00:41:36.094 hunger increased
NOTE Confidence: 0.9518599
00:41:36.475 --> 00:41:37.594 as they would under the
NOTE Confidence: 0.9518599
00:41:37.594 --> 00:41:39.410 placebo conditions, but ratings of
NOTE Confidence: 0.9518599
00:41:39.410 --> 00:41:39.910 hunger,
NOTE Confidence: 0.964247
00:41:40.450 --> 00:41:41.730 increased a little further with
NOTE Confidence: 0.964247
00:41:41.730 --> 00:41:42.230 CBG.
NOTE Confidence: 0.9733972
00:41:42.769 --> 00:41:44.289 And it's expected with five
NOTE Confidence: 0.9733972
00:41:44.289 --> 00:41:46.130 milligrams of THC. The lower
NOTE Confidence: 0.9733972
00:41:46.130 --> 00:41:47.650 strength of THC, we found
NOTE Confidence: 0.9733972
00:41:47.650 --> 00:41:49.190 further increases in hunger.
NOTE Confidence: 0.9844513
00:41:49.489 --> 00:41:50.864 Interestingly, with the highest dose
NOTE Confidence: 0.9844513

00:41:50.864 --> 00:41:52.305 of THC, we actually found
NOTE Confidence: 0.9844513

00:41:52.305 --> 00:41:53.825 that it reduced hunger and
NOTE Confidence: 0.9844513

00:41:53.825 --> 00:41:54.325 increased
NOTE Confidence: 0.9423265

00:41:54.705 --> 00:41:56.065 feelings of nausea. I think
NOTE Confidence: 0.9423265

00:41:56.065 --> 00:41:57.185 they got too much of
NOTE Confidence: 0.9423265

00:41:57.185 --> 00:41:58.005 a drug effect.
NOTE Confidence: 0.96050155

00:41:58.785 --> 00:42:00.305 But the combination of THC
NOTE Confidence: 0.96050155

00:42:00.305 --> 00:42:01.905 and CBG did not further
NOTE Confidence: 0.96050155

00:42:01.905 --> 00:42:03.605 increase ratings of hunger.
NOTE Confidence: 0.9223749

00:42:04.280 --> 00:42:05.239 So next, we looked at
NOTE Confidence: 0.9223749

00:42:05.239 --> 00:42:05.980 this anxiogenic
NOTE Confidence: 0.9387207

00:42:06.280 --> 00:42:06.780 effect.
NOTE Confidence: 0.91603184

00:42:07.160 --> 00:42:08.680 And so what Alisa found,
NOTE Confidence: 0.91603184

00:42:08.680 --> 00:42:10.540 doctor Pabon found, was that
NOTE Confidence: 0.98844403

00:42:10.840 --> 00:42:11.900 compared to how
NOTE Confidence: 0.9811554

00:42:12.200 --> 00:42:13.960 people rated their feelings of

NOTE Confidence: 0.9811554
00:42:13.960 --> 00:42:15.080 anxiety, you know, they come
NOTE Confidence: 0.9811554
00:42:15.080 --> 00:42:16.599 into lab. It's a strange
NOTE Confidence: 0.9811554
00:42:16.599 --> 00:42:17.099 environment.
NOTE Confidence: 0.98461914
00:42:17.400 --> 00:42:19.735 They're inhaling THC in a
NOTE Confidence: 0.98461914
00:42:20.055 --> 00:42:21.094 at nine AM on a
NOTE Confidence: 0.98461914
00:42:21.094 --> 00:42:22.215 Monday morning. You know, it's
NOTE Confidence: 0.98461914
00:42:22.215 --> 00:42:23.335 it's a very different type
NOTE Confidence: 0.98461914
00:42:23.335 --> 00:42:24.535 of experience than what people
NOTE Confidence: 0.98461914
00:42:24.535 --> 00:42:25.975 are used to. So there
NOTE Confidence: 0.98461914
00:42:25.975 --> 00:42:27.495 is some low levels of
NOTE Confidence: 0.98461914
00:42:27.495 --> 00:42:29.094 subjective ratings of anxiety. And
NOTE Confidence: 0.98461914
00:42:29.094 --> 00:42:30.055 what we found was that
NOTE Confidence: 0.98461914
00:42:30.055 --> 00:42:31.755 relative to placebo, CBG
NOTE Confidence: 0.97212726
00:42:32.369 --> 00:42:34.289 reduced these subjective ratings of
NOTE Confidence: 0.97212726
00:42:34.289 --> 00:42:34.789 anxiety.
NOTE Confidence: 0.99902344

00:42:35.250 --> 00:42:35.750 Unlike
NOTE Confidence: 0.9953308
00:42:36.130 --> 00:42:37.750 THC, the fifteen milligram,
NOTE Confidence: 0.98995537
00:42:38.130 --> 00:42:40.049 dose of THC increased ratings
NOTE Confidence: 0.98995537
00:42:40.049 --> 00:42:40.710 of anxiety.
NOTE Confidence: 0.98217773
00:42:41.489 --> 00:42:43.410 The combination, though, with THC
NOTE Confidence: 0.98217773
00:42:43.410 --> 00:42:44.150 and CBG
NOTE Confidence: 0.99319893
00:42:44.450 --> 00:42:46.390 reduced these ratings of THC
NOTE Confidence: 0.99319893
00:42:46.529 --> 00:42:47.190 by itself,
NOTE Confidence: 0.96042883
00:42:47.585 --> 00:42:49.505 which was interesting and aligned
NOTE Confidence: 0.96042883
00:42:49.505 --> 00:42:51.265 with, what others and doctor
NOTE Confidence: 0.96042883
00:42:51.265 --> 00:42:52.484 Kuller have found before.
NOTE Confidence: 0.9390259
00:42:53.184 --> 00:42:54.224 We were interested in looking
NOTE Confidence: 0.9390259
00:42:54.224 --> 00:42:55.204 at heart rate.
NOTE Confidence: 0.99731445
00:42:55.744 --> 00:42:56.625 Heart rate is one of
NOTE Confidence: 0.99731445
00:42:56.625 --> 00:42:58.805 the hallmark signs of THC
NOTE Confidence: 0.9975586
00:42:59.184 --> 00:42:59.684 exposure.

NOTE Confidence: 0.9702791
00:42:59.984 --> 00:43:00.864 Those of you who work
NOTE Confidence: 0.9702791
00:43:00.864 --> 00:43:02.510 in the in these labs
NOTE Confidence: 0.9702791
00:43:02.510 --> 00:43:03.390 will know it's like a
NOTE Confidence: 0.9702791
00:43:03.390 --> 00:43:04.770 telltale sign that somebody
NOTE Confidence: 0.92753905
00:43:05.150 --> 00:43:06.849 somebody's more reliable than intoxication.
NOTE Confidence: 0.9779324
00:43:07.630 --> 00:43:09.070 CBG did not increase heart
NOTE Confidence: 0.9779324
00:43:09.070 --> 00:43:11.550 rate, but THC did. And
NOTE Confidence: 0.9779324
00:43:11.550 --> 00:43:13.150 CBG did not augment these
NOTE Confidence: 0.9779324
00:43:13.150 --> 00:43:14.210 effects at all.
NOTE Confidence: 0.9367676
00:43:15.135 --> 00:43:16.355 But we ask people,
NOTE Confidence: 0.98847115
00:43:17.135 --> 00:43:19.375 to tell us about how
NOTE Confidence: 0.98847115
00:43:19.375 --> 00:43:21.055 they feel about their their
NOTE Confidence: 0.98847115
00:43:21.055 --> 00:43:22.255 heart. They feel like their
NOTE Confidence: 0.98847115
00:43:22.255 --> 00:43:23.155 heart is racing.
NOTE Confidence: 0.99438477
00:43:23.775 --> 00:43:25.315 And what's been found before
NOTE Confidence: 0.99438477

00:43:25.455 --> 00:43:27.099 is that with THC induced
NOTE Confidence: 0.99438477

00:43:27.099 --> 00:43:27.599 anxiety,
NOTE Confidence: 0.96803975

00:43:27.980 --> 00:43:29.980 usually, it's associated with this
NOTE Confidence: 0.96803975

00:43:29.980 --> 00:43:31.980 increased subjective ratings of heart
NOTE Confidence: 0.96803975

00:43:31.980 --> 00:43:32.480 racing.
NOTE Confidence: 0.94921875

00:43:33.339 --> 00:43:33.839 CBG,
NOTE Confidence: 0.9861043

00:43:34.940 --> 00:43:36.219 did not have this effect.
NOTE Confidence: 0.9861043

00:43:36.219 --> 00:43:37.099 In fact, it was lower
NOTE Confidence: 0.9861043

00:43:37.099 --> 00:43:37.760 than placebo,
NOTE Confidence: 0.9451904

00:43:38.859 --> 00:43:40.780 but THC did have a
NOTE Confidence: 0.9451904

00:43:40.780 --> 00:43:41.280 pronounced,
NOTE Confidence: 0.9847005

00:43:42.364 --> 00:43:44.605 increase in ratings of, heart
NOTE Confidence: 0.9847005

00:43:44.605 --> 00:43:45.105 racing,
NOTE Confidence: 0.99853516

00:43:45.484 --> 00:43:46.305 and CBG
NOTE Confidence: 0.98886716

00:43:46.605 --> 00:43:48.545 reduced these effects in orange.
NOTE Confidence: 0.99227905

00:43:49.244 --> 00:43:50.844 So it was interesting because

NOTE Confidence: 0.99227905
00:43:50.844 --> 00:43:52.065 we found that,
NOTE Confidence: 0.97216797
00:43:52.844 --> 00:43:54.545 CBG reduced anxiety
NOTE Confidence: 1
00:43:54.844 --> 00:43:55.344 subjective
NOTE Confidence: 0.96728516
00:43:55.860 --> 00:43:57.540 ratings of anxiety did not
NOTE Confidence: 0.96728516
00:43:57.540 --> 00:43:59.160 actually augment the cardiovascular
NOTE Confidence: 0.95255536
00:43:59.700 --> 00:44:00.680 effects of THC,
NOTE Confidence: 0.91833496
00:44:01.380 --> 00:44:02.920 but reduced the subjective
NOTE Confidence: 1
00:44:03.380 --> 00:44:03.880 feeling
NOTE Confidence: 0.97854006
00:44:04.820 --> 00:44:06.580 that people's hearts were racing
NOTE Confidence: 0.97854006
00:44:06.740 --> 00:44:08.360 that participants' hearts were racing.
NOTE Confidence: 0.9980469
00:44:08.825 --> 00:44:09.645 So to summarize,
NOTE Confidence: 0.99812824
00:44:10.585 --> 00:44:11.545 you know, this was kind
NOTE Confidence: 0.99812824
00:44:11.545 --> 00:44:12.425 of a mixed bag of
NOTE Confidence: 0.99812824
00:44:12.425 --> 00:44:13.085 a study.
NOTE Confidence: 0.98105466
00:44:13.545 --> 00:44:15.805 CBG didn't have abuse liability,
NOTE Confidence: 0.9984538

00:44:16.265 --> 00:44:18.025 and no analgesic effects. In
NOTE Confidence: 0.9984538

00:44:18.025 --> 00:44:18.525 fact,
NOTE Confidence: 0.95070577

00:44:18.905 --> 00:44:20.345 we wondered if CBG had
NOTE Confidence: 0.95070577

00:44:20.345 --> 00:44:21.705 had any effects at at
NOTE Confidence: 0.95070577

00:44:21.705 --> 00:44:23.865 all, really, but we did
NOTE Confidence: 0.95070577

00:44:23.865 --> 00:44:26.140 find this, modest reduction in
NOTE Confidence: 0.95070577

00:44:26.140 --> 00:44:26.880 in anxiety.
NOTE Confidence: 0.9876912

00:44:27.660 --> 00:44:29.020 But CBG did not impact
NOTE Confidence: 0.9876912

00:44:29.020 --> 00:44:31.020 THC induced appetite or pain
NOTE Confidence: 0.9876912

00:44:31.020 --> 00:44:33.020 effects, but the t the
NOTE Confidence: 0.9876912

00:44:33.020 --> 00:44:35.020 relationship between CBG and anxiety
NOTE Confidence: 0.9876912

00:44:35.020 --> 00:44:36.880 was definitely interesting. So
NOTE Confidence: 0.9775042

00:44:37.185 --> 00:44:39.265 THC shows potential for pain
NOTE Confidence: 0.9775042

00:44:39.265 --> 00:44:39.925 and appetite.
NOTE Confidence: 0.98109657

00:44:40.225 --> 00:44:41.425 There are adverse effects that
NOTE Confidence: 0.98109657

00:44:41.425 --> 00:44:42.165 might limit,

NOTE Confidence: 0.88842773
00:44:42.705 --> 00:44:43.445 its utility,
NOTE Confidence: 0.9943472
00:44:44.065 --> 00:44:45.905 and preclinical studies point to
NOTE Confidence: 0.9943472
00:44:45.905 --> 00:44:47.025 the fact that CBG might
NOTE Confidence: 0.9943472
00:44:47.025 --> 00:44:47.925 have this potential.
NOTE Confidence: 0.9845996
00:44:49.550 --> 00:44:51.010 But it seems like angiogenic
NOTE Confidence: 0.9845996
00:44:51.230 --> 00:44:52.750 effects of THC might be
NOTE Confidence: 0.9845996
00:44:52.750 --> 00:44:54.510 the target for this type
NOTE Confidence: 0.9845996
00:44:54.510 --> 00:44:56.670 of, THC sparing effect, not
NOTE Confidence: 0.9845996
00:44:56.670 --> 00:44:59.090 necessarily the abuse liability component.
NOTE Confidence: 0.98444414
00:44:59.710 --> 00:45:01.150 And so rigorous studies of
NOTE Confidence: 0.98444414
00:45:01.150 --> 00:45:03.315 CBG's effects alone and THC
NOTE Confidence: 0.98444414
00:45:03.315 --> 00:45:05.075 sparing effects are definitely needed.
NOTE Confidence: 0.98444414
00:45:05.075 --> 00:45:06.935 So so just to summarize,
NOTE Confidence: 0.9330193
00:45:08.035 --> 00:45:09.555 cannabis constituents, I hope I
NOTE Confidence: 0.9330193
00:45:09.555 --> 00:45:11.155 can I've convinced you that
NOTE Confidence: 0.9330193

00:45:11.155 --> 00:45:12.994 cannabis constituents have potential to

NOTE Confidence: 0.9330193

00:45:12.994 --> 00:45:13.815 reduce harms,

NOTE Confidence: 0.9838867

00:45:14.515 --> 00:45:15.655 and improve outcomes.

NOTE Confidence: 0.91471356

00:45:16.515 --> 00:45:17.335 It could also

NOTE Confidence: 0.97031075

00:45:17.980 --> 00:45:19.660 exacerbate, you know, some some

NOTE Confidence: 0.97031075

00:45:19.660 --> 00:45:21.100 of the harms associated with

NOTE Confidence: 0.97031075

00:45:21.100 --> 00:45:22.880 THC and certain combinations.

NOTE Confidence: 0.9951019

00:45:23.900 --> 00:45:25.440 We have an expanding cannabis

NOTE Confidence: 0.9951019

00:45:25.500 --> 00:45:26.620 market, and I'm sure that

NOTE Confidence: 0.9951019

00:45:26.620 --> 00:45:27.739 this isn't going to slow

NOTE Confidence: 0.9951019

00:45:27.739 --> 00:45:28.239 down,

NOTE Confidence: 0.98710936

00:45:28.620 --> 00:45:30.300 especially with the with the

NOTE Confidence: 0.98710936

00:45:30.300 --> 00:45:31.575 with the news. We know

NOTE Confidence: 0.98710936

00:45:31.575 --> 00:45:33.575 that THC concentrations are increasing

NOTE Confidence: 0.98710936

00:45:33.575 --> 00:45:35.175 across products, and there are

NOTE Confidence: 0.98710936

00:45:35.175 --> 00:45:36.695 many novel cannabinoids. So we're

NOTE Confidence: 0.98710936
00:45:36.695 --> 00:45:38.395 starting to study CBC now,
NOTE Confidence: 0.99417114
00:45:38.695 --> 00:45:39.755 as well as terpenes.
NOTE Confidence: 0.9826858
00:45:40.135 --> 00:45:42.055 And these controlled studies that
NOTE Confidence: 0.9826858
00:45:42.055 --> 00:45:43.494 are getting signals from the
NOTE Confidence: 0.9826858
00:45:43.494 --> 00:45:45.175 preclinical literature as well as
NOTE Confidence: 0.9826858
00:45:45.175 --> 00:45:46.920 signals from what types of
NOTE Confidence: 0.9826858
00:45:46.920 --> 00:45:48.540 offerings there are in dispensaries
NOTE Confidence: 0.9826858
00:45:48.599 --> 00:45:49.800 and what people are are
NOTE Confidence: 0.9826858
00:45:49.800 --> 00:45:51.960 using are really very important
NOTE Confidence: 0.9826858
00:45:51.960 --> 00:45:52.619 to understand,
NOTE Confidence: 0.9859525
00:45:53.320 --> 00:45:54.680 how they might act together
NOTE Confidence: 0.9859525
00:45:54.680 --> 00:45:56.280 to either improve the safety
NOTE Confidence: 0.9859525
00:45:56.280 --> 00:45:57.500 profile or actually
NOTE Confidence: 0.8601074
00:45:57.800 --> 00:45:58.839 perhaps make these,
NOTE Confidence: 0.99975586
00:45:59.320 --> 00:46:00.780 products even more risky.
NOTE Confidence: 0.9894409

00:46:01.125 --> 00:46:02.085 And with that, I'd like
NOTE Confidence: 0.9894409

00:46:02.085 --> 00:46:03.605 to thank, the funding and
NOTE Confidence: 0.9894409

00:46:03.605 --> 00:46:04.265 the collaborators,
NOTE Confidence: 0.931071

00:46:06.005 --> 00:46:07.145 and the participants.
NOTE Confidence: 0.97786456

00:46:07.925 --> 00:46:09.445 And I'm happy to take
NOTE Confidence: 0.97786456

00:46:09.445 --> 00:46:09.945 questions.
NOTE Confidence: 0.936971

00:46:12.485 --> 00:46:13.925 Thank you so much, Ziva.
NOTE Confidence: 0.936971

00:46:13.925 --> 00:46:14.825 This was really
NOTE Confidence: 0.9879693

00:46:15.160 --> 00:46:17.080 interesting, and, I'm sure this
NOTE Confidence: 0.9879693

00:46:17.080 --> 00:46:18.600 was a very hard study
NOTE Confidence: 0.9879693

00:46:18.600 --> 00:46:19.880 to do. You had so
NOTE Confidence: 0.9879693

00:46:19.880 --> 00:46:21.180 many multiple sessions
NOTE Confidence: 0.8944463

00:46:21.560 --> 00:46:22.520 in like, I know that
NOTE Confidence: 0.8944463

00:46:22.520 --> 00:46:24.760 regulator issues are always an
NOTE Confidence: 0.8944463

00:46:24.760 --> 00:46:26.120 issue, but also you had
NOTE Confidence: 0.8944463

00:46:26.120 --> 00:46:28.040 a very, like, every dose

NOTE Confidence: 0.8944463
00:46:28.040 --> 00:46:29.260 three times, and
NOTE Confidence: 0.9742257
00:46:29.645 --> 00:46:30.844 that was a lot for,
NOTE Confidence: 0.9742257
00:46:31.165 --> 00:46:32.065 also two
NOTE Confidence: 0.9291992
00:46:32.925 --> 00:46:34.704 compounds. But thank you.
NOTE Confidence: 0.95219725
00:46:35.244 --> 00:46:36.944 This is really wonderful. And
NOTE Confidence: 0.95219725
00:46:37.005 --> 00:46:38.785 if anyone has any question,
NOTE Confidence: 0.9780405
00:46:39.085 --> 00:46:40.685 please either type it in
NOTE Confidence: 0.9780405
00:46:40.685 --> 00:46:42.605 the chat or raise hands.
NOTE Confidence: 0.9780405
00:46:42.605 --> 00:46:43.964 But I'd like to start
NOTE Confidence: 0.9780405
00:46:43.964 --> 00:46:45.244 with one question that I'm
NOTE Confidence: 0.9780405
00:46:45.244 --> 00:46:46.739 sure you had looked at
NOTE Confidence: 0.9780405
00:46:46.739 --> 00:46:48.580 that. Although the sample size
NOTE Confidence: 0.9780405
00:46:48.580 --> 00:46:50.180 might be small, but any
NOTE Confidence: 0.9780405
00:46:50.180 --> 00:46:50.920 sex differences?
NOTE Confidence: 0.9894409
00:46:53.540 --> 00:46:54.739 The sample size is very
NOTE Confidence: 0.9894409

00:46:54.739 --> 00:46:55.719 small for this.
NOTE Confidence: 0.99226886

00:46:56.580 --> 00:46:57.620 We're looking at,
NOTE Confidence: 0.96749675

00:46:58.100 --> 00:47:00.015 some sex dependent effects for
NOTE Confidence: 0.96749675

00:47:00.015 --> 00:47:01.855 THC specifically across a range
NOTE Confidence: 0.96749675

00:47:01.855 --> 00:47:03.214 of studies that use similar
NOTE Confidence: 0.96749675

00:47:03.214 --> 00:47:05.135 doses. But for CBG at
NOTE Confidence: 0.96749675

00:47:05.135 --> 00:47:06.415 this point, it's it's really
NOTE Confidence: 0.96749675

00:47:06.415 --> 00:47:08.835 small. Yeah. Yeah. But the
NOTE Confidence: 0.98669964

00:47:10.750 --> 00:47:12.110 males and females didn't differ
NOTE Confidence: 0.98669964

00:47:12.110 --> 00:47:13.570 in their in their baseline
NOTE Confidence: 0.98669964

00:47:13.630 --> 00:47:15.469 demographics, which was nice, but
NOTE Confidence: 0.98669964

00:47:15.469 --> 00:47:16.430 that that will be for
NOTE Confidence: 0.98669964

00:47:16.430 --> 00:47:17.489 a larger study.
NOTE Confidence: 0.92610675

00:47:18.030 --> 00:47:19.570 Yeah. Next one.
NOTE Confidence: 0.93530273

00:47:20.989 --> 00:47:21.730 I'm sorry.
NOTE Confidence: 0.9920349

00:47:22.430 --> 00:47:23.890 So there is one question

NOTE Confidence: 0.9920349
00:47:23.950 --> 00:47:24.770 in the chat.
NOTE Confidence: 0.86047363
00:47:26.225 --> 00:47:27.045 I'm sorry.
NOTE Confidence: 0.96515304
00:47:27.825 --> 00:47:29.205 I'm coming off a cold.
NOTE Confidence: 0.96515304
00:47:29.425 --> 00:47:30.645 That was a great presentation.
NOTE Confidence: 0.96515304
00:47:30.785 --> 00:47:31.985 I might have missed it,
NOTE Confidence: 0.96515304
00:47:31.985 --> 00:47:34.325 but any changes with pharmacokinetic
NOTE Confidence: 0.9835612
00:47:34.864 --> 00:47:36.245 and cognitive changes?
NOTE Confidence: 0.9958496
00:47:37.265 --> 00:47:38.325 Really good question.
NOTE Confidence: 0.97351074
00:47:38.864 --> 00:47:40.325 So the bloods are
NOTE Confidence: 0.92561847
00:47:40.940 --> 00:47:41.840 are being analyzed,
NOTE Confidence: 0.9970703
00:47:44.060 --> 00:47:45.040 as we speak.
NOTE Confidence: 0.9970703
00:47:45.980 --> 00:47:47.420 And then with respect to
NOTE Confidence: 0.9970703
00:47:47.420 --> 00:47:49.840 cognitive impairment, we we did
NOTE Confidence: 0.9970703
00:47:49.980 --> 00:47:51.180 we did look at,
NOTE Confidence: 0.99222237
00:47:51.580 --> 00:47:53.260 those effects. They weren't our
NOTE Confidence: 0.99222237

00:47:53.260 --> 00:47:55.100 primary outcome, so we haven't
NOTE Confidence: 0.99222237

00:47:55.100 --> 00:47:56.480 delved into the into
NOTE Confidence: 0.98809814

00:47:56.815 --> 00:47:58.435 that data quite yet.
NOTE Confidence: 0.97898954

00:47:59.215 --> 00:48:00.335 But that will be important
NOTE Confidence: 0.97898954

00:48:00.335 --> 00:48:01.135 as well because we know
NOTE Confidence: 0.97898954

00:48:01.135 --> 00:48:02.495 that THC has effects on
NOTE Confidence: 0.97898954

00:48:02.495 --> 00:48:03.315 that endpoint.
NOTE Confidence: 0.99975586

00:48:03.935 --> 00:48:04.675 Thank you.
NOTE Confidence: 0.9231635

00:48:05.535 --> 00:48:07.155 Doctor Mizrahi has a question.
NOTE Confidence: 0.9231635

00:48:07.295 --> 00:48:07.795 Romina.
NOTE Confidence: 0.99609375

00:48:08.255 --> 00:48:08.670 Hi.
NOTE Confidence: 0.9364624

00:48:09.230 --> 00:48:11.329 Excellent presentation. Thank you.
NOTE Confidence: 0.92620295

00:48:12.109 --> 00:48:13.790 So I I I I
NOTE Confidence: 0.92620295

00:48:13.790 --> 00:48:14.829 will ask you a difficult
NOTE Confidence: 0.92620295

00:48:14.829 --> 00:48:15.329 question,
NOTE Confidence: 0.95495605

00:48:16.510 --> 00:48:17.549 really because I don't know

NOTE Confidence: 0.95495605
00:48:17.549 --> 00:48:18.670 the answer to this question.
NOTE Confidence: 0.95495605
00:48:18.670 --> 00:48:19.869 So I thought maybe you
NOTE Confidence: 0.95495605
00:48:19.869 --> 00:48:20.609 have a better,
NOTE Confidence: 0.9437798
00:48:22.275 --> 00:48:23.075 you know, you can help
NOTE Confidence: 0.9437798
00:48:23.075 --> 00:48:24.275 with this. So what I
NOTE Confidence: 0.9437798
00:48:24.275 --> 00:48:25.395 what I think all all
NOTE Confidence: 0.9437798
00:48:25.395 --> 00:48:26.775 the time when,
NOTE Confidence: 0.93359375
00:48:27.395 --> 00:48:27.875 I,
NOTE Confidence: 0.99405926
00:48:28.275 --> 00:48:29.155 I think about,
NOTE Confidence: 0.9760742
00:48:29.555 --> 00:48:30.055 cannabinoids
NOTE Confidence: 0.9877116
00:48:30.594 --> 00:48:32.275 is the the mechanism of
NOTE Confidence: 0.9877116
00:48:32.275 --> 00:48:32.775 action.
NOTE Confidence: 0.9811361
00:48:33.555 --> 00:48:35.680 Right? And so and and
NOTE Confidence: 0.9811361
00:48:35.680 --> 00:48:37.120 I was thinking, oh, how
NOTE Confidence: 0.9811361
00:48:37.120 --> 00:48:38.820 great it would be, this,
NOTE Confidence: 0.8959961

00:48:39.920 --> 00:48:40.400 this,
NOTE Confidence: 0.9784139
00:48:40.880 --> 00:48:42.480 slide with the mechanism of
NOTE Confidence: 0.9784139
00:48:42.480 --> 00:48:43.760 action of every one of
NOTE Confidence: 0.9784139
00:48:43.760 --> 00:48:44.820 these, compounds.
NOTE Confidence: 0.9666748
00:48:46.935 --> 00:48:48.155 I don't have it.
NOTE Confidence: 0.9627951
00:48:49.575 --> 00:48:50.855 Do you have any sense
NOTE Confidence: 0.9627951
00:48:50.855 --> 00:48:52.295 of what we would say?
NOTE Confidence: 0.9627951
00:48:52.295 --> 00:48:53.015 I mean, I know a
NOTE Confidence: 0.9627951
00:48:53.015 --> 00:48:54.215 bit I mean, I know,
NOTE Confidence: 0.9627951
00:48:54.455 --> 00:48:55.335 I guess, for,
NOTE Confidence: 0.97143555
00:48:55.815 --> 00:48:56.315 THC,
NOTE Confidence: 0.8834403
00:48:57.175 --> 00:48:58.555 but not even for CBD,
NOTE Confidence: 0.8834403
00:48:58.695 --> 00:48:59.355 we know.
NOTE Confidence: 0.984375
00:49:00.055 --> 00:49:01.800 Not fully even for THC.
NOTE Confidence: 0.95830077
00:49:02.360 --> 00:49:03.800 No clue, at least for
NOTE Confidence: 0.95830077
00:49:03.800 --> 00:49:05.260 me, for the other compounds.

NOTE Confidence: 0.9809163
00:49:05.960 --> 00:49:07.660 Do you have a better
NOTE Confidence: 0.9809163
00:49:07.719 --> 00:49:08.219 understanding,
NOTE Confidence: 0.9871826
00:49:08.600 --> 00:49:09.719 or can you shed some
NOTE Confidence: 0.9871826
00:49:09.719 --> 00:49:10.600 light on this,
NOTE Confidence: 0.99853516
00:49:11.000 --> 00:49:11.820 or we
NOTE Confidence: 0.87714845
00:49:12.440 --> 00:49:13.820 we keep trying? You know,
NOTE Confidence: 0.9770508
00:49:14.200 --> 00:49:14.680 I I
NOTE Confidence: 0.95311785
00:49:16.135 --> 00:49:17.415 frequently, I think, you know,
NOTE Confidence: 0.95311785
00:49:17.415 --> 00:49:19.015 people talk about how the
NOTE Confidence: 0.95311785
00:49:19.015 --> 00:49:20.614 cannabis plan is like this,
NOTE Confidence: 0.95311785
00:49:20.614 --> 00:49:21.275 you know,
NOTE Confidence: 0.9959717
00:49:21.815 --> 00:49:23.575 so many different chemicals that
NOTE Confidence: 0.9959717
00:49:23.575 --> 00:49:24.395 might be helpful.
NOTE Confidence: 0.9151204
00:49:24.775 --> 00:49:25.675 We're a pharmacologist.
NOTE Confidence: 1
00:49:26.055 --> 00:49:26.935 I really think it's a
NOTE Confidence: 1

00:49:26.935 --> 00:49:27.835 total nightmare.
NOTE Confidence: 0.9674944

00:49:28.455 --> 00:49:29.575 I don't you know? I
NOTE Confidence: 0.9674944

00:49:29.575 --> 00:49:30.155 I mean,
NOTE Confidence: 0.88009644

00:49:31.290 --> 00:49:33.050 I'm seeing that realizing that
NOTE Confidence: 0.88009644

00:49:33.050 --> 00:49:34.030 it's not restricted
NOTE Confidence: 0.9976562

00:49:34.650 --> 00:49:36.330 to cannabinoids or natural products.
NOTE Confidence: 0.9976562

00:49:36.330 --> 00:49:37.630 I mean, we know that
NOTE Confidence: 0.94683343

00:49:38.010 --> 00:49:39.530 even the therapeutics that are
NOTE Confidence: 0.94683343

00:49:39.530 --> 00:49:40.969 used today for, you know,
NOTE Confidence: 0.94683343

00:49:40.969 --> 00:49:42.650 mental illness, like, it's some
NOTE Confidence: 0.94683343

00:49:42.810 --> 00:49:44.270 it's really hard to pinpoint
NOTE Confidence: 0.94683343

00:49:44.410 --> 00:49:45.945 the mechanism of action. But
NOTE Confidence: 0.94683343

00:49:45.945 --> 00:49:46.844 But I think, Romina,
NOTE Confidence: 0.9473971

00:49:48.105 --> 00:49:49.385 I grew up I grew
NOTE Confidence: 0.9473971

00:49:49.385 --> 00:49:51.465 up studying opioids, and I
NOTE Confidence: 0.9473971

00:49:51.465 --> 00:49:52.844 loved the pharmacology,

NOTE Confidence: 0.93659467

00:49:53.785 --> 00:49:55.485 back then. It seemed simple.

NOTE Confidence: 0.93659467

00:49:55.705 --> 00:49:56.905 You have the delta opioid

NOTE Confidence: 0.93659467

00:49:56.905 --> 00:49:59.005 kappa. You had different agonists,

NOTE Confidence: 0.93659467

00:49:59.065 --> 00:50:01.350 different antagonists that, you know,

NOTE Confidence: 0.93659467

00:50:01.350 --> 00:50:03.590 were had different efficacy, different

NOTE Confidence: 0.93659467

00:50:03.590 --> 00:50:04.710 potencies. It was such a

NOTE Confidence: 0.93659467

00:50:04.710 --> 00:50:05.610 beautiful model.

NOTE Confidence: 0.9842529

00:50:05.910 --> 00:50:07.110 And I think I was

NOTE Confidence: 0.9842529

00:50:07.110 --> 00:50:08.330 turned on to the cannabinoid

NOTE Confidence: 0.9842529

00:50:08.390 --> 00:50:09.750 system because I thought the

NOTE Confidence: 0.9842529

00:50:09.750 --> 00:50:10.250 pharmacology

NOTE Confidence: 0.99253625

00:50:10.550 --> 00:50:12.070 would be as equally fun

NOTE Confidence: 0.99253625

00:50:12.070 --> 00:50:12.810 and meaningful.

NOTE Confidence: 0.9485377

00:50:14.230 --> 00:50:15.755 But the cannabis plant is

NOTE Confidence: 0.9485377

00:50:15.755 --> 00:50:16.635 like you know, we call

NOTE Confidence: 0.9485377

00:50:16.635 --> 00:50:18.235 them cannabinoids, but as you
NOTE Confidence: 0.9485377

00:50:18.235 --> 00:50:19.855 said, like, CBD has
NOTE Confidence: 0.9292227

00:50:20.235 --> 00:50:21.594 hundreds of different mechanism of
NOTE Confidence: 0.9292227

00:50:21.594 --> 00:50:22.795 action and whether or not
NOTE Confidence: 0.9292227

00:50:22.795 --> 00:50:24.075 actually acts in a meaningful
NOTE Confidence: 0.9292227

00:50:24.075 --> 00:50:25.355 way at the endocannabinoid system
NOTE Confidence: 0.9292227

00:50:25.355 --> 00:50:26.635 is like a huge question
NOTE Confidence: 0.9292227

00:50:26.635 --> 00:50:27.135 mark.
NOTE Confidence: 0.9913908

00:50:28.315 --> 00:50:29.950 So how to make sense
NOTE Confidence: 0.9913908

00:50:29.950 --> 00:50:31.469 of the pharmacology of each
NOTE Confidence: 0.9913908

00:50:31.469 --> 00:50:33.010 one of these chemical constituents
NOTE Confidence: 0.9913908

00:50:33.070 --> 00:50:34.210 and how they interact
NOTE Confidence: 0.94952106

00:50:34.590 --> 00:50:36.110 together and whether that's, like,
NOTE Confidence: 0.94952106

00:50:36.110 --> 00:50:36.850 a pharmacodynamic
NOTE Confidence: 0.6911621

00:50:38.030 --> 00:50:38.530 effect.
NOTE Confidence: 0.97558594

00:50:38.830 --> 00:50:40.430 Is it? Or is it

NOTE Confidence: 0.97558594
00:50:40.430 --> 00:50:41.630 really chalked up to just
NOTE Confidence: 0.97558594
00:50:41.630 --> 00:50:42.130 pharmacokinetics,
NOTE Confidence: 0.9475795
00:50:42.590 --> 00:50:44.105 which in my head is
NOTE Confidence: 0.9475795
00:50:44.105 --> 00:50:44.844 really important,
NOTE Confidence: 0.9986328
00:50:45.224 --> 00:50:46.605 but a lot more boring
NOTE Confidence: 0.93636066
00:50:46.984 --> 00:50:47.964 than the pharmacodynamic
NOTE Confidence: 0.93652344
00:50:48.585 --> 00:50:49.085 interaction.
NOTE Confidence: 0.99373674
00:50:49.864 --> 00:50:50.664 And so I don't you
NOTE Confidence: 0.99373674
00:50:50.664 --> 00:50:51.545 know, we don't know. If
NOTE Confidence: 0.99373674
00:50:51.545 --> 00:50:52.525 you look at the preclinical
NOTE Confidence: 0.99373674
00:50:52.664 --> 00:50:54.684 literature, it seems like CBG's
NOTE Confidence: 0.99373674
00:50:54.905 --> 00:50:57.145 action at the serotonin system
NOTE Confidence: 0.99373674
00:50:57.145 --> 00:50:57.964 is probably
NOTE Confidence: 0.9847694
00:50:58.530 --> 00:50:59.730 responsible for a lot of
NOTE Confidence: 0.9847694
00:50:59.730 --> 00:51:00.930 these effects. And, you know,
NOTE Confidence: 0.9847694

00:51:00.930 --> 00:51:02.230 how does THC
NOTE Confidence: 0.9622454

00:51:02.530 --> 00:51:04.290 and CBG interact at that
NOTE Confidence: 0.9622454

00:51:04.290 --> 00:51:05.570 system, you know, I think
NOTE Confidence: 0.9622454

00:51:05.570 --> 00:51:06.710 is a question mark.
NOTE Confidence: 0.9880066

00:51:07.250 --> 00:51:08.450 You know, there's some good
NOTE Confidence: 0.9880066

00:51:08.450 --> 00:51:10.070 preclinical behavioral pharmacologists
NOTE Confidence: 0.99072266

00:51:10.370 --> 00:51:11.810 who we have in common.
NOTE Confidence: 0.99072266

00:51:11.810 --> 00:51:12.450 A lot of them are
NOTE Confidence: 0.99072266

00:51:12.450 --> 00:51:13.110 in Canada,
NOTE Confidence: 0.98967373

00:51:13.704 --> 00:51:14.665 who are really trying to
NOTE Confidence: 0.98967373

00:51:14.665 --> 00:51:15.724 work out this pharmacology.
NOTE Confidence: 0.9970703

00:51:16.344 --> 00:51:17.325 But I think
NOTE Confidence: 0.98134583

00:51:18.025 --> 00:51:19.625 I think it's exciting. I
NOTE Confidence: 0.98134583

00:51:19.625 --> 00:51:21.085 think it is very confusing.
NOTE Confidence: 0.98134583

00:51:21.224 --> 00:51:22.605 It's not like the opioid
NOTE Confidence: 0.98134583

00:51:22.665 --> 00:51:24.025 field as much as I

NOTE Confidence: 0.98134583
00:51:24.025 --> 00:51:24.984 kind of, like, hoped it
NOTE Confidence: 0.98134583
00:51:24.984 --> 00:51:25.645 would be.
NOTE Confidence: 0.98339844
00:51:26.600 --> 00:51:27.640 But there might be some
NOTE Confidence: 0.98339844
00:51:27.640 --> 00:51:29.500 unique combination of mechanisms
NOTE Confidence: 1
00:51:29.800 --> 00:51:31.500 there that might produce
NOTE Confidence: 0.9980469
00:51:32.520 --> 00:51:33.820 a clinically relevant
NOTE Confidence: 0.9525391
00:51:34.120 --> 00:51:36.700 positive outcome for specific populations
NOTE Confidence: 0.9730632
00:51:37.080 --> 00:51:38.600 across different doses and different
NOTE Confidence: 0.9730632
00:51:38.600 --> 00:51:40.200 modes of administration. But it
NOTE Confidence: 0.9730632
00:51:40.200 --> 00:51:41.239 is a big puzzle. And
NOTE Confidence: 0.9730632
00:51:41.239 --> 00:51:42.140 I think one
NOTE Confidence: 0.97879344
00:51:42.495 --> 00:51:43.375 I think one that, like,
NOTE Confidence: 0.97879344
00:51:43.375 --> 00:51:44.255 we have to work on
NOTE Confidence: 0.97879344
00:51:44.255 --> 00:51:46.015 just given the proliferation of
NOTE Confidence: 0.97879344
00:51:46.015 --> 00:51:47.855 products and the popularity. Right?
NOTE Confidence: 0.97879344

00:51:47.855 --> 00:51:49.055 They're, like, not going away.

NOTE Confidence: 0.97879344

00:51:49.055 --> 00:51:49.935 It's not like, you know,

NOTE Confidence: 0.97879344

00:51:49.935 --> 00:51:51.455 the old antipsychotics that we

NOTE Confidence: 0.97879344

00:51:51.455 --> 00:51:52.495 don't know, like, how they

NOTE Confidence: 0.97879344

00:51:52.495 --> 00:51:53.695 work, but they somehow work.

NOTE Confidence: 0.97879344

00:51:53.695 --> 00:51:55.135 But we moved on, and

NOTE Confidence: 0.97879344

00:51:55.135 --> 00:51:56.095 we can get get rid

NOTE Confidence: 0.97879344

00:51:56.095 --> 00:51:56.995 of them. So

NOTE Confidence: 0.9692871

00:51:57.590 --> 00:51:58.230 so it will be a

NOTE Confidence: 0.9692871

00:51:58.230 --> 00:51:59.690 fun puzzle to figure out.

NOTE Confidence: 0.81973547

00:52:00.230 --> 00:52:02.150 I agree. Thank you. Carrie

NOTE Confidence: 0.81973547

00:52:02.150 --> 00:52:04.150 Cutler. So much. Yes. Go

NOTE Confidence: 0.81973547

00:52:04.150 --> 00:52:04.650 ahead.

NOTE Confidence: 0.94416875

00:52:05.350 --> 00:52:07.830 Hey, Ziva. It's really great

NOTE Confidence: 0.94416875

00:52:07.830 --> 00:52:09.590 talk. It's really fun to

NOTE Confidence: 0.94416875

00:52:09.590 --> 00:52:11.450 hear all your Eva's findings,

NOTE Confidence: 0.94416875
00:52:11.510 --> 00:52:12.810 especially about CVG.
NOTE Confidence: 0.9055664
00:52:14.114 --> 00:52:15.635 I was super excited to
NOTE Confidence: 0.9055664
00:52:15.635 --> 00:52:17.335 see that you were able
NOTE Confidence: 0.9963379
00:52:17.795 --> 00:52:19.094 to mitigate the THC
NOTE Confidence: 0.8552595
00:52:19.395 --> 00:52:21.415 induced anxiety to some extent
NOTE Confidence: 0.8552595
00:52:21.475 --> 00:52:22.135 in CBG.
NOTE Confidence: 0.9933036
00:52:23.235 --> 00:52:25.235 We also just replicated that
NOTE Confidence: 0.9933036
00:52:25.235 --> 00:52:26.215 finding that
NOTE Confidence: 0.987962
00:52:26.930 --> 00:52:28.930 CBG reduces anxiety, but not
NOTE Confidence: 0.987962
00:52:28.930 --> 00:52:30.550 with that very cool THC
NOTE Confidence: 0.987962
00:52:30.770 --> 00:52:31.830 aspect to it.
NOTE Confidence: 0.9970703
00:52:32.610 --> 00:52:34.390 In our most recent data
NOTE Confidence: 0.97886825
00:52:35.010 --> 00:52:36.530 from our lab study, we
NOTE Confidence: 0.97886825
00:52:36.530 --> 00:52:37.910 also did not find,
NOTE Confidence: 0.96903485
00:52:38.450 --> 00:52:40.150 any evidence of analgesia.
NOTE Confidence: 0.9448405

00:52:40.610 --> 00:52:42.015 And we used a cold
NOTE Confidence: 0.9448405

00:52:42.015 --> 00:52:44.094 presser as well and found
NOTE Confidence: 0.9448405

00:52:44.094 --> 00:52:47.075 that did absolutely nothing to,
NOTE Confidence: 0.9685669

00:52:47.934 --> 00:52:49.694 latency to withdraw the hand
NOTE Confidence: 0.9685669

00:52:49.694 --> 00:52:51.295 or pain ratings or anything
NOTE Confidence: 0.9685669

00:52:51.295 --> 00:52:51.954 like that.
NOTE Confidence: 0.9928481

00:52:52.414 --> 00:52:53.980 And I'm just curious if
NOTE Confidence: 0.9928481

00:52:53.980 --> 00:52:55.020 you think that we are
NOTE Confidence: 0.9928481

00:52:55.020 --> 00:52:56.540 just hitting the wrong kind
NOTE Confidence: 0.9928481

00:52:56.540 --> 00:52:57.120 of pain
NOTE Confidence: 0.9143996

00:52:57.420 --> 00:52:58.700 because so many people are
NOTE Confidence: 0.9143996

00:52:58.700 --> 00:53:00.700 reporting using for pain, the
NOTE Confidence: 0.9143996

00:53:00.700 --> 00:53:02.700 reporting beneficial effects. You see
NOTE Confidence: 0.9143996

00:53:02.700 --> 00:53:04.219 that evidence in the rodent
NOTE Confidence: 0.9143996

00:53:04.219 --> 00:53:04.719 literature.
NOTE Confidence: 0.98902684

00:53:05.994 --> 00:53:07.035 I'm not sure if you're

NOTE Confidence: 0.98902684
00:53:07.035 --> 00:53:08.714 aware of what kind of
NOTE Confidence: 0.98902684
00:53:08.714 --> 00:53:09.915 pain they're looking at in
NOTE Confidence: 0.98902684
00:53:09.915 --> 00:53:11.435 that rodent literature. They're also
NOTE Confidence: 0.98902684
00:53:11.435 --> 00:53:13.195 getting massive doses, but I'm
NOTE Confidence: 0.98902684
00:53:13.195 --> 00:53:14.315 just wondering if maybe we're
NOTE Confidence: 0.98902684
00:53:14.315 --> 00:53:15.355 going at the wrong kind
NOTE Confidence: 0.98902684
00:53:15.355 --> 00:53:16.015 of pain.
NOTE Confidence: 0.994315
00:53:18.890 --> 00:53:20.170 So thank you so much
NOTE Confidence: 0.994315
00:53:20.170 --> 00:53:21.530 for coming, Carrie. It's great
NOTE Confidence: 0.994315
00:53:21.530 --> 00:53:23.130 to hear you, and to
NOTE Confidence: 0.994315
00:53:23.130 --> 00:53:24.730 hear about your your recent
NOTE Confidence: 0.994315
00:53:24.730 --> 00:53:25.230 study.
NOTE Confidence: 0.96972656
00:53:26.330 --> 00:53:27.690 I mean, the CPT is
NOTE Confidence: 0.96972656
00:53:27.690 --> 00:53:28.330 really just,
NOTE Confidence: 0.9890747
00:53:29.050 --> 00:53:30.250 it's supposed to have predictive
NOTE Confidence: 0.9890747

00:53:30.250 --> 00:53:32.190 validity for for
NOTE Confidence: 0.99667966

00:53:32.664 --> 00:53:34.025 therapeutics that are for chronic
NOTE Confidence: 0.99667966

00:53:34.025 --> 00:53:36.125 pain, whatever chronic pain means.
NOTE Confidence: 0.994222

00:53:36.664 --> 00:53:37.864 A lot of people use
NOTE Confidence: 0.994222

00:53:37.864 --> 00:53:38.364 QST
NOTE Confidence: 0.9888563

00:53:39.065 --> 00:53:40.184 to try and look at,
NOTE Confidence: 0.9888563

00:53:40.184 --> 00:53:41.305 you know, whether or not
NOTE Confidence: 0.9888563

00:53:41.305 --> 00:53:42.825 cannabinoids can have a signal
NOTE Confidence: 0.9888563

00:53:42.825 --> 00:53:44.184 there. So across a range
NOTE Confidence: 0.9888563

00:53:44.184 --> 00:53:46.285 of sensory modalities, you know,
NOTE Confidence: 0.9888563

00:53:46.344 --> 00:53:47.644 is there a signal? And
NOTE Confidence: 0.98552734

00:53:48.330 --> 00:53:50.410 THC has not been shown
NOTE Confidence: 0.98552734

00:53:50.410 --> 00:53:52.170 to have a signal there
NOTE Confidence: 0.98552734

00:53:52.170 --> 00:53:53.370 in that in that type
NOTE Confidence: 0.98552734

00:53:53.370 --> 00:53:54.489 of in that type of,
NOTE Confidence: 0.98552734

00:53:54.890 --> 00:53:56.670 series of of pain tests.

NOTE Confidence: 0.923584
00:53:57.210 --> 00:53:58.350 CBG might.
NOTE Confidence: 0.9992676
00:53:58.969 --> 00:54:00.270 I'm I'm not sure.
NOTE Confidence: 0.9995117
00:54:01.290 --> 00:54:01.950 I think
NOTE Confidence: 0.99757737
00:54:04.235 --> 00:54:06.094 it's hard to study pain
NOTE Confidence: 0.99757737
00:54:06.155 --> 00:54:08.175 in people, both patient populations
NOTE Confidence: 0.99757737
00:54:08.315 --> 00:54:09.455 and healthy participants.
NOTE Confidence: 0.98222655
00:54:10.315 --> 00:54:11.594 CPT is just one way
NOTE Confidence: 0.98222655
00:54:11.594 --> 00:54:13.215 to get at it. But,
NOTE Confidence: 0.98068845
00:54:14.715 --> 00:54:15.915 you know, there's all kinds
NOTE Confidence: 0.98068845
00:54:15.915 --> 00:54:18.380 of there's anxiety induced pain,
NOTE Confidence: 0.91391224
00:54:18.839 --> 00:54:19.880 that can be looked at
NOTE Confidence: 0.91391224
00:54:19.880 --> 00:54:21.319 compounded with a cold presser
NOTE Confidence: 0.91391224
00:54:21.319 --> 00:54:22.380 test. There is
NOTE Confidence: 0.66064453
00:54:23.800 --> 00:54:24.300 inflammatory
NOTE Confidence: 0.9776856
00:54:24.680 --> 00:54:26.059 types of pain, so capsaicin,
NOTE Confidence: 0.9927734

00:54:26.839 --> 00:54:28.300 which is done at Yale,
NOTE Confidence: 0.94036865

00:54:28.839 --> 00:54:30.059 if I remember correctly.
NOTE Confidence: 0.968152

00:54:31.344 --> 00:54:33.105 So which is very difficult,
NOTE Confidence: 0.968152

00:54:33.105 --> 00:54:34.065 as difficult as it is
NOTE Confidence: 0.968152

00:54:34.065 --> 00:54:35.265 to do these studies. Looking
NOTE Confidence: 0.968152

00:54:35.265 --> 00:54:36.864 at capsaicin induced pain is
NOTE Confidence: 0.968152

00:54:36.864 --> 00:54:37.685 a whole another
NOTE Confidence: 0.89070636

00:54:38.065 --> 00:54:38.785 ball of wax.
NOTE Confidence: 0.99114436

00:54:39.505 --> 00:54:41.265 So there's definitely different avenues.
NOTE Confidence: 0.99114436

00:54:41.265 --> 00:54:42.565 With respect to the preclinical
NOTE Confidence: 0.99114436

00:54:42.625 --> 00:54:43.125 literature,
NOTE Confidence: 0.98665774

00:54:43.985 --> 00:54:45.469 there hasn't been as much
NOTE Confidence: 0.98665774

00:54:45.469 --> 00:54:46.750 with CBG as there has
NOTE Confidence: 0.98665774

00:54:46.750 --> 00:54:48.430 been with THC and and
NOTE Confidence: 0.98665774

00:54:48.430 --> 00:54:50.050 CBD even at this point.
NOTE Confidence: 0.9869908

00:54:50.670 --> 00:54:51.630 So I think there's some

NOTE Confidence: 0.9869908
00:54:51.630 --> 00:54:52.530 question marks,
NOTE Confidence: 0.9995117
00:54:52.910 --> 00:54:54.270 and some different thoughts about
NOTE Confidence: 0.9995117
00:54:54.270 --> 00:54:54.770 that.
NOTE Confidence: 0.98361546
00:54:55.630 --> 00:54:57.150 Thank you. Thanks again for
NOTE Confidence: 0.98361546
00:54:57.150 --> 00:54:58.750 a fantastic talk and wonderful
NOTE Confidence: 0.98361546
00:54:58.750 --> 00:54:59.650 research, Ziva.
NOTE Confidence: 0.9707845
00:55:00.234 --> 00:55:01.135 Thank you, Carrie.
NOTE Confidence: 0.9140625
00:55:01.435 --> 00:55:02.474 Thank you so much. We
NOTE Confidence: 0.9140625
00:55:02.474 --> 00:55:03.994 have one question from doctor
NOTE Confidence: 0.9140625
00:55:03.994 --> 00:55:04.494 Omari.
NOTE Confidence: 0.9617649
00:55:05.435 --> 00:55:07.355 Doctor Omari, do you, if
NOTE Confidence: 0.9617649
00:55:07.355 --> 00:55:08.315 you have if you can
NOTE Confidence: 0.9617649
00:55:08.315 --> 00:55:09.515 ask your questions or I
NOTE Confidence: 0.9617649
00:55:09.515 --> 00:55:10.734 can read it.
NOTE Confidence: 0.9995117
00:55:12.759 --> 00:55:13.980 I'm gonna read it.
NOTE Confidence: 0.9921588

00:55:14.440 --> 00:55:15.480 I read that this wasn't
NOTE Confidence: 0.9921588

00:55:15.480 --> 00:55:16.680 the focus of your research,
NOTE Confidence: 0.9921588

00:55:16.680 --> 00:55:17.559 but do you have any
NOTE Confidence: 0.9921588

00:55:17.559 --> 00:55:18.779 opinion about,
NOTE Confidence: 0.9401681

00:55:20.440 --> 00:55:22.519 like, in literature that suggests
NOTE Confidence: 0.9401681

00:55:22.519 --> 00:55:23.980 about the effects of CBN
NOTE Confidence: 0.9401681

00:55:24.119 --> 00:55:25.500 on pain and intoxication?
NOTE Confidence: 0.9968669

00:55:27.414 --> 00:55:28.855 Interesting. I haven't we usually
NOTE Confidence: 0.9968669

00:55:28.855 --> 00:55:30.775 think about CBN with respect
NOTE Confidence: 0.9968669

00:55:30.775 --> 00:55:31.755 to the
NOTE Confidence: 0.9603989

00:55:32.375 --> 00:55:33.654 the, quote, unquote, like, sleep
NOTE Confidence: 0.9603989

00:55:33.654 --> 00:55:35.174 inducing effects of CBN. I
NOTE Confidence: 0.9603989

00:55:35.174 --> 00:55:36.614 haven't I haven't necessarily thought
NOTE Confidence: 0.9603989

00:55:36.614 --> 00:55:38.375 about it, with respect to
NOTE Confidence: 0.9603989

00:55:38.375 --> 00:55:38.875 pain.
NOTE Confidence: 0.89109004

00:55:39.654 --> 00:55:42.610 I don't expect it to

NOTE Confidence: 0.89109004
00:55:42.870 --> 00:55:44.130 be intoxicating.
NOTE Confidence: 0.94463146
00:55:46.350 --> 00:55:47.710 It's it's been shown you
NOTE Confidence: 0.94463146
00:55:47.710 --> 00:55:49.070 know, it doesn't with a
NOTE Confidence: 0.94463146
00:55:49.070 --> 00:55:50.030 few studies that have been
NOTE Confidence: 0.94463146
00:55:50.030 --> 00:55:51.550 done, it doesn't in humans
NOTE Confidence: 0.94463146
00:55:51.550 --> 00:55:53.625 with high high much higher
NOTE Confidence: 0.94463146
00:55:53.625 --> 00:55:54.905 doses than what we usually
NOTE Confidence: 0.94463146
00:55:54.905 --> 00:55:56.525 give a THC. It doesn't
NOTE Confidence: 0.94463146
00:55:56.665 --> 00:55:58.265 really have that THC, like,
NOTE Confidence: 0.94463146
00:55:58.265 --> 00:56:00.025 profile, and there's, you know,
NOTE Confidence: 0.94463146
00:56:00.025 --> 00:56:01.145 questions about whether or not
NOTE Confidence: 0.94463146
00:56:01.145 --> 00:56:02.185 it is it is helpful
NOTE Confidence: 0.94463146
00:56:02.185 --> 00:56:02.844 for sleep.
NOTE Confidence: 0.9970703
00:56:03.305 --> 00:56:04.585 But for pain, I I
NOTE Confidence: 0.9970703
00:56:04.585 --> 00:56:05.190 don't know.
NOTE Confidence: 0.96940345

00:56:05.670 --> 00:56:06.550 I'm trying to, like in
NOTE Confidence: 0.96940345

00:56:06.550 --> 00:56:07.190 in the back of my
NOTE Confidence: 0.96940345

00:56:07.190 --> 00:56:07.989 head, I'm trying to scroll
NOTE Confidence: 0.96940345

00:56:07.989 --> 00:56:09.589 through the preclinical literature that
NOTE Confidence: 0.96940345

00:56:09.589 --> 00:56:10.310 I can think of in
NOTE Confidence: 0.96940345

00:56:10.310 --> 00:56:11.030 the back of my head
NOTE Confidence: 0.96940345

00:56:11.030 --> 00:56:13.130 as as CBN shown
NOTE Confidence: 0.9446498

00:56:13.750 --> 00:56:15.349 an interesting signal for pain.
NOTE Confidence: 0.9446498

00:56:15.349 --> 00:56:17.190 I can't it it doesn't
NOTE Confidence: 0.9446498

00:56:17.190 --> 00:56:18.105 come up for me,
NOTE Confidence: 0.9967448

00:56:18.905 --> 00:56:20.425 that it would. But at
NOTE Confidence: 0.9967448

00:56:20.425 --> 00:56:21.945 the same time, you know,
NOTE Confidence: 0.9967448

00:56:21.945 --> 00:56:23.145 as I said, there is
NOTE Confidence: 0.9967448

00:56:23.145 --> 00:56:24.285 a positive association
NOTE Confidence: 0.9382324

00:56:25.465 --> 00:56:25.864 between,
NOTE Confidence: 0.94059247

00:56:26.505 --> 00:56:28.125 between pain and,

NOTE Confidence: 0.94949776
00:56:29.465 --> 00:56:31.225 reductions in appetite. That feels
NOTE Confidence: 0.94949776
00:56:31.225 --> 00:56:31.965 like a
NOTE Confidence: 0.9550934
00:56:32.420 --> 00:56:34.440 positive red there's an association
NOTE Confidence: 0.9550934
00:56:34.580 --> 00:56:36.500 between reductions in appetite and,
NOTE Confidence: 0.9550934
00:56:36.820 --> 00:56:38.260 severe pain. Right? And so
NOTE Confidence: 0.9550934
00:56:38.260 --> 00:56:39.540 one would think we know
NOTE Confidence: 0.9550934
00:56:39.540 --> 00:56:40.900 that sleep also goes hand
NOTE Confidence: 0.9550934
00:56:40.900 --> 00:56:42.260 in hand with pain, also
NOTE Confidence: 0.9550934
00:56:42.260 --> 00:56:43.000 with appetite.
NOTE Confidence: 0.9938068
00:56:43.460 --> 00:56:45.060 So one one might think
NOTE Confidence: 0.9938068
00:56:45.060 --> 00:56:45.860 that if there is an
NOTE Confidence: 0.9938068
00:56:45.860 --> 00:56:46.765 agent that can help with
NOTE Confidence: 0.9938068
00:56:46.765 --> 00:56:47.965 sleep, it might also be
NOTE Confidence: 0.9938068
00:56:47.965 --> 00:56:49.325 helpful for for pain and
NOTE Confidence: 0.9938068
00:56:49.325 --> 00:56:50.765 vice versa. So there might
NOTE Confidence: 0.9938068

00:56:50.765 --> 00:56:52.205 be that potential there similar

NOTE Confidence: 0.9938068

00:56:52.205 --> 00:56:53.825 with THC with CBG.

NOTE Confidence: 0.99975586

00:56:55.485 --> 00:56:56.625 Thank you so much.

NOTE Confidence: 0.94102645

00:56:57.565 --> 00:56:58.844 Oh, I oh, that's just

NOTE Confidence: 0.94102645

00:56:58.844 --> 00:57:00.445 the thanks. Okay. So,

NOTE Confidence: 0.98860675

00:57:02.369 --> 00:57:03.489 if there is any other

NOTE Confidence: 0.98860675

00:57:03.489 --> 00:57:03.989 question,

NOTE Confidence: 0.8519287

00:57:04.369 --> 00:57:06.309 we have, like, two minutes,

NOTE Confidence: 0.9952567

00:57:07.089 --> 00:57:08.609 but if there is no

NOTE Confidence: 0.9952567

00:57:08.609 --> 00:57:09.349 other question,

NOTE Confidence: 0.75009763

00:57:09.809 --> 00:57:11.829 I have general questions about

NOTE Confidence: 0.97837526

00:57:12.289 --> 00:57:13.589 pain. And I know that

NOTE Confidence: 0.97837526

00:57:13.745 --> 00:57:15.265 we use different models of

NOTE Confidence: 0.97837526

00:57:15.265 --> 00:57:16.545 acute pain when we want

NOTE Confidence: 0.97837526

00:57:16.545 --> 00:57:18.885 to, investigate the effects of,

NOTE Confidence: 0.7336426

00:57:19.665 --> 00:57:20.165 cannabinoids.

NOTE Confidence: 0.99653155

00:57:20.625 --> 00:57:22.305 But it seems that chronic

NOTE Confidence: 0.99653155

00:57:22.305 --> 00:57:24.145 pain might really have very

NOTE Confidence: 0.99653155

00:57:24.145 --> 00:57:26.305 different mechanism or different components

NOTE Confidence: 0.99653155

00:57:26.305 --> 00:57:27.665 to it compared to acute

NOTE Confidence: 0.99653155

00:57:27.665 --> 00:57:28.865 pain. Do you what do

NOTE Confidence: 0.99653155

00:57:28.865 --> 00:57:29.640 you think about that?

NOTE Confidence: 0.973886

00:57:30.359 --> 00:57:31.319 I think this is a

NOTE Confidence: 0.973886

00:57:31.319 --> 00:57:32.839 really important point that we

NOTE Confidence: 0.973886

00:57:32.839 --> 00:57:33.720 have to include in the

NOTE Confidence: 0.973886

00:57:33.720 --> 00:57:35.319 conversation. So, for example, I

NOTE Confidence: 0.973886

00:57:35.319 --> 00:57:36.839 always say CPT this the

NOTE Confidence: 0.973886

00:57:36.839 --> 00:57:38.760 colorectal test has predictive validity

NOTE Confidence: 0.973886

00:57:38.760 --> 00:57:40.380 for therapeutics for chronic pain.

NOTE Confidence: 0.973886

00:57:40.519 --> 00:57:41.559 But when we think about

NOTE Confidence: 0.973886

00:57:41.559 --> 00:57:43.515 chronic pain and the neurobiological

NOTE Confidence: 0.9975586

00:57:43.975 --> 00:57:45.755 adaptations that likely occur
NOTE Confidence: 0.95897496

00:57:46.455 --> 00:57:48.215 over the months that people
NOTE Confidence: 0.95897496

00:57:48.215 --> 00:57:49.494 are experiencing the chronic pain,
NOTE Confidence: 0.95897496

00:57:49.494 --> 00:57:50.855 we know based off of
NOTE Confidence: 0.95897496

00:57:50.855 --> 00:57:52.375 animal studies, based off of
NOTE Confidence: 0.95897496

00:57:52.375 --> 00:57:53.735 pet imaging studies, that there
NOTE Confidence: 0.95897496

00:57:53.735 --> 00:57:54.235 are
NOTE Confidence: 0.99456376

00:57:54.950 --> 00:57:57.369 changes in in people's neurobiology.
NOTE Confidence: 0.9926758

00:57:58.309 --> 00:57:59.130 And so
NOTE Confidence: 0.99560547

00:57:59.990 --> 00:58:00.950 how do
NOTE Confidence: 0.9998372

00:58:01.750 --> 00:58:02.890 how does pharmacology
NOTE Confidence: 0.95344096

00:58:03.349 --> 00:58:04.710 change then? We know that
NOTE Confidence: 0.95344096

00:58:04.710 --> 00:58:06.890 pharmacology changes in preclinical literature.
NOTE Confidence: 0.95344096

00:58:06.950 --> 00:58:07.670 You know, we talked about
NOTE Confidence: 0.95344096

00:58:07.670 --> 00:58:08.650 opioids before.
NOTE Confidence: 0.9793973

00:58:08.955 --> 00:58:10.635 It's been nicely fleshed out.

NOTE Confidence: 0.9793973

00:58:10.635 --> 00:58:11.135 So

NOTE Confidence: 0.9426126

00:58:11.515 --> 00:58:12.475 is that the same for

NOTE Confidence: 0.9426126

00:58:12.475 --> 00:58:13.835 cannabinoids? You know, we know

NOTE Confidence: 0.9426126

00:58:13.835 --> 00:58:15.215 that the that the CB1

NOTE Confidence: 0.9426126

00:58:15.355 --> 00:58:16.335 receptor changes

NOTE Confidence: 0.9975586

00:58:16.635 --> 00:58:17.375 in response

NOTE Confidence: 0.98109454

00:58:18.315 --> 00:58:19.595 to chronic pain, at least,

NOTE Confidence: 0.98109454

00:58:19.595 --> 00:58:21.150 again, in animal models. I'm

NOTE Confidence: 0.98109454

00:58:21.150 --> 00:58:22.190 I'm trying to think about

NOTE Confidence: 0.98109454

00:58:22.190 --> 00:58:23.390 human, but this is a

NOTE Confidence: 0.98109454

00:58:23.390 --> 00:58:24.829 really important question. You know,

NOTE Confidence: 0.98109454

00:58:24.829 --> 00:58:26.130 we have these assays.

NOTE Confidence: 0.9984809

00:58:26.750 --> 00:58:28.190 Maybe they can potentially provide

NOTE Confidence: 0.9984809

00:58:28.190 --> 00:58:29.650 a signal for the

NOTE Confidence: 0.9980469

00:58:30.029 --> 00:58:32.109 therapeutic effects of of an

NOTE Confidence: 0.9980469

00:58:32.109 --> 00:58:32.609 agent
NOTE Confidence: 0.9608032

00:58:32.910 --> 00:58:33.789 that might be helpful for
NOTE Confidence: 0.9608032

00:58:33.789 --> 00:58:34.750 pain so we can move
NOTE Confidence: 0.9608032

00:58:34.750 --> 00:58:35.710 into a into a pain
NOTE Confidence: 0.9608032

00:58:35.710 --> 00:58:37.694 population. But it is hard.
NOTE Confidence: 0.971393

00:58:37.994 --> 00:58:39.275 At a certain point, you
NOTE Confidence: 0.971393

00:58:39.275 --> 00:58:40.555 gotta move on. You gotta
NOTE Confidence: 0.971393

00:58:40.555 --> 00:58:41.595 move on to a phase
NOTE Confidence: 0.971393

00:58:41.595 --> 00:58:42.795 two study and be able
NOTE Confidence: 0.971393

00:58:42.795 --> 00:58:44.555 to understand the effects in
NOTE Confidence: 0.971393

00:58:44.555 --> 00:58:46.234 the pain population. The question
NOTE Confidence: 0.971393

00:58:46.234 --> 00:58:47.115 is, though, is like, oh
NOTE Confidence: 0.971393

00:58:47.115 --> 00:58:48.075 my gosh. What type of
NOTE Confidence: 0.971393

00:58:48.075 --> 00:58:48.900 pain are you gonna
NOTE Confidence: 0.971754

00:58:51.460 --> 00:58:51.521 look at? I can't be
NOTE Confidence: 0.971754

00:58:51.533 --> 00:58:51.595 what's chronic pain? Chronic pain's

NOTE Confidence: 0.971754
00:58:51.595 --> 00:58:52.260 a million different things. So
NOTE Confidence: 0.971754
00:58:52.260 --> 00:58:53.380 you gotta figure out and
NOTE Confidence: 0.971754
00:58:53.380 --> 00:58:54.440 hone in on
NOTE Confidence: 0.99140626
00:58:55.059 --> 00:58:57.160 what what is the hypothesized,
NOTE Confidence: 0.9992676
00:58:58.579 --> 00:58:59.799 analgesic potential
NOTE Confidence: 0.9736816
00:59:00.660 --> 00:59:02.440 with respect to pain pathology.
NOTE Confidence: 0.97978514
00:59:02.819 --> 00:59:04.359 And so it's it's hard.
NOTE Confidence: 0.9427246
00:59:04.745 --> 00:59:05.625 Yeah. It's a hard thing
NOTE Confidence: 0.9427246
00:59:05.625 --> 00:59:07.145 to study. Yeah. Totally get
NOTE Confidence: 0.9427246
00:59:07.145 --> 00:59:08.425 it. Yeah. We have one
NOTE Confidence: 0.9427246
00:59:08.425 --> 00:59:09.625 final question. I know we
NOTE Confidence: 0.9427246
00:59:09.625 --> 00:59:11.245 are out of time, but,
NOTE Confidence: 0.9941406
00:59:12.185 --> 00:59:12.685 Lola,
NOTE Confidence: 0.9466634
00:59:13.705 --> 00:59:14.505 do you want to ask
NOTE Confidence: 0.9466634
00:59:14.505 --> 00:59:16.525 a question? Sure. Hi, Ziva.
NOTE Confidence: 0.97810876

00:59:16.905 --> 00:59:18.185 Fantastic presentation. Thank you so

NOTE Confidence: 0.97810876

00:59:18.185 --> 00:59:19.065 much. I have so many

NOTE Confidence: 0.97810876

00:59:19.065 --> 00:59:20.445 questions, but I'll follow-up

NOTE Confidence: 0.99121094

00:59:21.320 --> 00:59:22.120 on all of them with

NOTE Confidence: 0.99121094

00:59:22.120 --> 00:59:22.860 you separately.

NOTE Confidence: 0.94873047

00:59:23.560 --> 00:59:25.660 Question here is next minor

NOTE Confidence: 0.94873047

00:59:25.880 --> 00:59:27.660 cannabinoids that you might study.

NOTE Confidence: 0.99902344

00:59:28.360 --> 00:59:29.580 What are they gonna be?

NOTE Confidence: 0.9925221

00:59:30.680 --> 00:59:31.960 So we're we're working on

NOTE Confidence: 0.9925221

00:59:31.960 --> 00:59:33.740 finishing some terpene stuff.

NOTE Confidence: 0.95598966

00:59:40.974 --> 00:59:42.515 The terpenes are very interesting.

NOTE Confidence: 0.9087728

00:59:43.214 --> 00:59:44.335 Some of the most interest

NOTE Confidence: 0.9087728

00:59:44.335 --> 00:59:46.674 in terpenes terpene profiles that

NOTE Confidence: 0.9363152

00:59:47.535 --> 00:59:48.579 you might be sending? But

NOTE Confidence: 0.9363152

00:59:48.579 --> 00:59:49.859 to the ones the ones

NOTE Confidence: 0.9363152

00:59:49.859 --> 00:59:51.140 we're finishing right now, we

NOTE Confidence: 0.9363152
00:59:51.140 --> 00:59:51.880 have preclinical
NOTE Confidence: 0.81393427
00:59:52.180 --> 00:59:53.619 counterparts to them is myrcene
NOTE Confidence: 0.81393427
00:59:53.619 --> 00:59:54.599 and beta caryophyllene.
NOTE Confidence: 0.95996094
00:59:55.540 --> 00:59:56.420 Mhmm. But there are some
NOTE Confidence: 0.95996094
00:59:56.420 --> 00:59:57.540 other ones that are popping
NOTE Confidence: 0.95996094
00:59:57.540 --> 00:59:58.599 up, like Humalene,
NOTE Confidence: 1
00:59:58.900 --> 00:59:59.880 that are interesting.
NOTE Confidence: 0.9785156
01:00:03.655 --> 01:00:04.155 There's
NOTE Confidence: 0.98773193
01:00:04.535 --> 01:00:05.674 a lot of opportunity.
NOTE Confidence: 0.95458984
01:00:06.934 --> 01:00:08.135 You know, the the plan
NOTE Confidence: 0.95458984
01:00:08.135 --> 01:00:09.174 has a lot of different
NOTE Confidence: 0.95458984
01:00:09.174 --> 01:00:10.234 chemicals. I think
NOTE Confidence: 0.9938965
01:00:10.694 --> 01:00:11.815 part of what part of
NOTE Confidence: 0.9938965
01:00:11.815 --> 01:00:13.575 this is really guided based
NOTE Confidence: 0.9938965
01:00:13.575 --> 01:00:15.115 off of, like, survey data,
NOTE Confidence: 0.96653056

01:00:15.950 --> 01:00:16.910 based off of what people
NOTE Confidence: 0.96653056

01:00:16.910 --> 01:00:18.190 are using, you know, when
NOTE Confidence: 0.96653056

01:00:18.190 --> 01:00:19.330 you go to the dispensaries.
NOTE Confidence: 0.96653056

01:00:19.390 --> 01:00:20.830 Like, what's the next hot
NOTE Confidence: 0.96653056

01:00:20.830 --> 01:00:23.070 thing? You know? CBDs got
NOTE Confidence: 0.96653056

01:00:23.230 --> 01:00:24.110 you know, might be getting
NOTE Confidence: 0.96653056

01:00:24.110 --> 01:00:24.930 out of favor.
NOTE Confidence: 0.96875

01:00:26.270 --> 01:00:26.770 So
NOTE Confidence: 0.9975586

01:00:28.045 --> 01:00:28.545 I'll
NOTE Confidence: 0.9862276

01:00:28.845 --> 01:00:29.725 I'll have to think about
NOTE Confidence: 0.9862276

01:00:29.725 --> 01:00:31.725 what's what's next. We do
NOTE Confidence: 0.9862276

01:00:31.725 --> 01:00:33.005 we do have a study
NOTE Confidence: 0.9862276

01:00:33.005 --> 01:00:33.825 with CPC
NOTE Confidence: 0.70251465

01:00:35.965 --> 01:00:36.785 lined up.
NOTE Confidence: 0.97542316

01:00:38.525 --> 01:00:40.365 So, you know, that that's
NOTE Confidence: 0.97542316

01:00:40.365 --> 01:00:40.865 exciting.

NOTE Confidence: 0.9969177
01:00:42.630 --> 01:00:43.589 But, yeah, there's a lot
NOTE Confidence: 0.9969177
01:00:43.589 --> 01:00:44.490 of different possibilities.
NOTE Confidence: 0.9769477
01:00:46.309 --> 01:00:48.230 Alright. Thank you. Thank you,
NOTE Confidence: 0.9769477
01:00:48.230 --> 01:00:50.170 Lola. So much. It was
NOTE Confidence: 0.9769477
01:00:50.390 --> 01:00:52.410 wonderful having you today, Ziva,
NOTE Confidence: 0.97128135
01:00:52.710 --> 01:00:53.750 and I hope to see
NOTE Confidence: 0.97128135
01:00:53.750 --> 01:00:55.750 you again soon. Yeah. I'll
NOTE Confidence: 0.97128135
01:00:55.750 --> 01:00:56.779 see you in New York
NOTE Confidence: 0.97128135
01:00:56.939 --> 01:00:58.319 Running around Central Park.
NOTE Confidence: 0.92360145
01:01:00.139 --> 01:01:01.339 Take care. Have a nice
NOTE Confidence: 0.92360145
01:01:01.339 --> 01:01:02.539 day. Thank you, everybody. Thank
NOTE Confidence: 0.92360145
01:01:02.539 --> 01:01:03.759 you very much, everyone.
NOTE Confidence: 0.9840495
01:01:04.219 --> 01:01:05.599 Okay. Bye. Bye.