WEBVTT

00:00:00.000 --> 00:00:03.204 Funding for Yale Cancer Answers is

NOTE Confidence: 0.939021778181818

00:00:03.204 --> 00:00:06.240 provided by Smilow Cancer Hospital.

NOTE Confidence: 0.939021778181818

00:00:06.240 --> 00:00:08.300 Welcome to Yale Cancer Answers

NOTE Confidence: 0.939021778181818

00:00:08.300 --> 00:00:10.360 with Doctor Anees Chagpar.

NOTE Confidence: 0.939021778181818

00:00:10.360 --> 00:00:12.634 Yale Cancer Answers features the latest

NOTE Confidence: 0.939021778181818

00:00:12.634 --> 00:00:14.953 information on cancer care by welcoming

NOTE Confidence: 0.939021778181818

00:00:14.953 --> 00:00:17.564 oncologists and specialists who are on the

NOTE Confidence: 0.939021778181818

00:00:17.564 --> 00:00:19.719 forefront of the battle to fight cancer.

NOTE Confidence: 0.939021778181818

00:00:19.720 --> 00:00:21.664 This week it's a conversation about

NOTE Confidence: 0.939021778181818

00:00:21.664 --> 00:00:23.864 the use of digital neurotherapy to

NOTE Confidence: 0.939021778181818

00:00:23.864 --> 00:00:26.384 address anxiety and depression in cancer

NOTE Confidence: 0.939021778181818

00:00:26.384 --> 00:00:28.489 patients with Doctor Bruce Wexler.

NOTE Confidence: 0.939021778181818

00:00:28.490 --> 00:00:30.836 Doctor Wexler is a professor emeritus

NOTE Confidence: 0.939021778181818

00:00:30.836 --> 00:00:32.790 and senior research scientist in

NOTE Confidence: 0.939021778181818

00:00:32.790 --> 00:00:35.086 psychiatry at the Yale School of Medicine,

NOTE Confidence: 0.939021778181818

00:00:35.090 --> 00:00:36.955 where Doctor Chagpar is a

NOTE Confidence: 0.939021778181818

00:00:36.955 --> 00:00:38.447 professor of surgical oncology.

NOTE Confidence: 0.938066012173913

00:00:39.490 --> 00:00:41.205 Dr. Wexler, maybe we can start off

NOTE Confidence: 0.938066012173913

00:00:41.205 --> 00:00:43.165 by you telling us a little bit more

NOTE Confidence: 0.938066012173913

00:00:43.165 --> 00:00:44.888 about yourself and what it is you do.

NOTE Confidence: 0.92613314125

00:00:46.370 --> 00:00:49.320 Well, I'm a psychiatrist

NOTE Confidence: 0.92613314125

00:00:49.320 --> 00:00:51.090 and a neuroscientist.

NOTE Confidence: 0.92613314125

00:00:51.090 --> 00:00:53.890 I've been interested my whole

NOTE Confidence: 0.92613314125

00:00:53.890 --> 00:00:56.340 career in how our brains work.

NOTE Confidence: 0.92613314125

00:00:56.340 --> 00:00:58.848 And how our brains support and

NOTE Confidence: 0.92613314125

00:00:58.848 --> 00:01:01.233 what their relationship is to the

NOTE Confidence: 0.92613314125

00:01:01.233 --> 00:01:03.459 way we think and feel as people.

NOTE Confidence: 0.92613314125

00:01:03.460 --> 00:01:06.190 And then how our brains and

NOTE Confidence: 0.92613314125

00:01:06.190 --> 00:01:08.010 our minds together interact

NOTE Confidence: 0.92613314125

00:01:08.100 --> 00:01:10.416 with the rest of our bodies.

NOTE Confidence: 0.92613314125

00:01:10.420 --> 00:01:12.100 We're learning more and more

NOTE Confidence: 0.92613314125

00:01:12.100 --> 00:01:13.780 about all of these things.

NOTE Confidence: 0.92613314125

00:01:13.780 --> 00:01:16.328 And you can see already that I

NOTE Confidence: 0.92613314125

00:01:16.328 --> 00:01:18.872 don't shy away from the complexity

NOTE Confidence: 0.92613314125

00:01:18.872 --> 00:01:21.910 of these questions and of the way

NOTE Confidence: 0.92613314125

00:01:21.910 --> 00:01:24.450 these wonderful parts of us are

NOTE Confidence: 0.92613314125

00:01:24.450 --> 00:01:26.370 actually organized and work.

NOTE Confidence: 0.92613314125

00:01:26.370 --> 00:01:27.330 Our brains,

NOTE Confidence: 0.92613314125

00:01:27.330 --> 00:01:29.372 as you may know have over 80

NOTE Confidence: 0.92613314125

00:01:29.372 --> 00:01:31.064 billion neurons and each one can

NOTE Confidence: 0.92613314125

00:01:31.064 --> 00:01:32.850 be connected to 1000 other ones.

NOTE Confidence: 0.92613314125

00:01:32.850 --> 00:01:35.270 It's the most complex living

NOTE Confidence: 0.92613314125

00:01:35.270 --> 00:01:37.690 system that we know about,

NOTE Confidence: 0.92613314125

00:01:37.690 --> 00:01:39.671 and I'm a systems thinker and I'm

NOTE Confidence: 0.92613314125

00:01:39.671 --> 00:01:41.306 happy to explain what that means

NOTE Confidence: 0.92613314125

00:01:41.306 --> 00:01:43.351 and how we relate it to how the

NOTE Confidence: 0.92613314125

00:01:43.351 --> 00:01:45.049 brain works and our minds work.

NOTE Confidence: 0.92613314125

00:01:45.050 --> 00:01:47.050 And then issues like depression,

NOTE Confidence: 0.92613314125

00:01:47.050 --> 00:01:50.326 anxiety, and physical illness.

NOTE Confidence: 0.939661635294118

00:01:51.090 --> 00:01:53.246 Yeah, so tell us more about what

NOTE Confidence: 0.939661635294118

00:01:53.246 --> 00:01:55.131 exactly a systems thinker is

NOTE Confidence: 0.939661635294118

00:01:55.131 --> 00:01:58.850 and how it applies.

NOTE Confidence: 0.951994233333333

00:01:58.850 --> 00:02:02.322 The systems thinker likes to look at and

NOTE Confidence: 0.951994233333333

00:02:02.322 --> 00:02:05.170 appreciates the necessity of understanding

NOTE Confidence: 0.951994233333333

00:02:05.170 --> 00:02:07.888 the complexity of how things interact,

NOTE Confidence: 0.951994233333333

00:02:07.890 --> 00:02:10.319 And a key concept in these is

NOTE Confidence: 0.951994233333333

00:02:10.319 --> 00:02:12.090 called an emergent property.

NOTE Confidence: 0.951994233333333

00:02:12.090 --> 00:02:15.310 An emergenet property is something that comes

NOTE Confidence: 0.951994233333333

00:02:15.310 --> 00:02:18.528 into existence when different parts interact.

NOTE Confidence: 0.951994233333333

00:02:18.530 --> 00:02:19.870 But doesn't exist in

NOTE Confidence: 0.951994233333333

00:02:19.870 --> 00:02:21.210 either one by themselves.

NOTE Confidence: 0.951994233333333

00:02:21.210 --> 00:02:23.086 Like water, for example.

NOTE Confidence: 0.951994233333333

00:02:23.086 --> 00:02:25.431 Water has all these wonderful

NOTE Confidence: 0.951994233333333

00:02:25.431 --> 00:02:27.961 properties of freezing and expanding

NOTE Confidence: 0.951994233333333

00:02:27.961 --> 00:02:30.474 and creating crystals, forming snow,

NOTE Confidence: 0.951994233333333

00:02:30.474 --> 00:02:33.430 flowing in water in streams and rivers.

NOTE Confidence: 0.951994233333333

00:02:33.430 --> 00:02:34.850 So you might say,

NOTE Confidence: 0.951994233333333

00:02:34.850 --> 00:02:36.490 a scientist might say, well,

NOTE Confidence: 0.951994233333333

00:02:36.490 --> 00:02:38.930 I want to understand where this comes from.

NOTE Confidence: 0.951994233333333

00:02:38.930 --> 00:02:40.880 It's made-up of two atoms of

NOTE Confidence: 0.951994233333333

00:02:40.880 --> 00:02:42.730 hydrogen and one of oxygen.

NOTE Confidence: 0.951994233333333

00:02:42.730 --> 00:02:44.738 Let's break it apart and look at

NOTE Confidence: 0.951994233333333

00:02:44.738 --> 00:02:46.524 the hydrogen and look at the oxygen

NOTE Confidence: 0.951994233333333

00:02:46.524 --> 00:02:48.309 so we can understand where all these

NOTE Confidence: 0.951994233333333

00:02:48.310 --> 00:02:50.470 properties come from. The water,

NOTE Confidence: 0.951994233333333

00:02:50.470 --> 00:02:51.470 when you break it apart,

NOTE Confidence: 0.951994233333333

00:02:51.470 --> 00:02:52.826 those properties disappear.

NOTE Confidence: 0.951994233333333

00:02:52.826 --> 00:02:55.990 They don't exist in hydrogen and oxygen,

NOTE Confidence: 0.951994233333333

00:02:55.990 --> 00:02:58.390 only in their special combination.

NOTE Confidence: 0.951994233333333

00:02:58.390 --> 00:03:00.189 So apply that to what I told

NOTE Confidence: 0.951994233333333

00:03:00.189 --> 00:03:01.390 you about our brain.

NOTE Confidence: 0.951994233333333

00:03:01.390 --> 00:03:03.760 80 billion neurons and each one

NOTE Confidence: 0.951994233333333

00:03:03.760 --> 00:03:05.974 connected to a 1000 others.

NOTE Confidence: 0.951994233333333

00:03:05.974 --> 00:03:08.534 This is a complex system

NOTE Confidence: 0.951994233333333

00:03:08.534 --> 00:03:10.070 of interacting parts,

NOTE Confidence: 0.951994233333333

00:03:10.070 --> 00:03:12.210 and it's those interactions that

NOTE Confidence: 0.951994233333333

00:03:12.210 --> 00:03:14.350 create the emergent processes and

NOTE Confidence: 0.951994233333333

00:03:14.417 --> 00:03:15.817 among those emergent processes

NOTE Confidence: 0.951994233333333

00:03:15.817 --> 00:03:18.310 are the way we think and feel.

NOTE Confidence: 0.951994233333333

00:03:18.310 --> 00:03:19.882 Because our brain is

NOTE Confidence: 0.951994233333333

00:03:19.882 --> 00:03:20.668 organized hierarchically,

NOTE Confidence: 0.951994233333333

00:03:20.670 --> 00:03:23.586 from single cells, to two cells,

NOTE Confidence: 0.951994233333333

00:03:23.590 --> 00:03:26.140 dyads that work together to local

NOTE Confidence: 0.951994233333333

00:03:26.140 --> 00:03:28.910 neurons that create little microcircuits,

NOTE Confidence: 0.951994233333333

00:03:28.910 --> 00:03:30.534 to neurosystems that integrate

NOTE Confidence: 0.951994233333333

00:03:30.534 --> 00:03:32.564 hundreds of millions of neurons

NOTE Confidence: 0.951994233333333

00:03:32.564 --> 00:03:34.308 from all across the brain.

NOTE Confidence: 0.951994233333333

00:03:34.310 --> 00:03:36.490 And cognition and emotion live

NOTE Confidence: 0.951994233333333

00:03:36.490 --> 00:03:38.670 there at the neurosystems level,

NOTE Confidence: 0.951994233333333

00:03:38.670 --> 00:03:41.270 not in individual cells.

NOTE Confidence: 0.951994233333333

00:03:41.270 --> 00:03:43.410 So as a psychiatrist,

NOTE Confidence: 0.951994233333333

00:03:43.410 --> 00:03:46.085 I'm interested in how people

NOTE Confidence: 0.951994233333333

00:03:46.090 --> 00:03:48.465 think and feel and what

NOTE Confidence: 0.951994233333333

00:03:48.465 --> 00:03:49.890 could cause disturbances,

NOTE Confidence: 0.951994233333333

00:03:49.890 --> 00:03:50.982 subjective discomfort in

NOTE Confidence: 0.951994233333333

00:03:50.982 --> 00:03:53.166 the way we think and feel.

NOTE Confidence: 0.951994233333333

00:03:53.170 --> 00:03:55.585 So that means that these are disruptions

NOTE Confidence: 0.951994233333333

00:03:55.585 --> 00:03:57.570 and changes in their systems,

NOTE Confidence: 0.951994233333333

00:03:57.570 --> 00:03:59.330 not at the sub level.

NOTE Confidence: 0.951994233333333

00:03:59.330 --> 00:04:03.578 So a systems thinker understands emergent

NOTE Confidence: 0.951994233333333

00:04:03.578 --> 00:04:05.661 properties, embraces the complexity.

NOTE Confidence: 0.951994233333333

00:04:05.661 --> 00:04:08.403 It's an alternate approach to science.

NOTE Confidence: 0.951994233333333

00:04:08.410 --> 00:04:10.420 The reduction approach has its own

NOTE Confidence: 0.951994233333333

00:04:10.420 --> 00:04:12.482 values which it takes things apart

NOTE Confidence: 0.951994233333333

00:04:12.482 --> 00:04:14.456 to look at the individual ones.

NOTE Confidence: 0.951994233333333

00:04:14.460 --> 00:04:16.776 The systems part puts them together

NOTE Confidence: 0.951994233333333

00:04:16.780 --> 00:04:18.430 and then says what happens when

NOTE Confidence: 0.951994233333333

00:04:18.430 --> 00:04:20.330 you put them together in more and

NOTE Confidence: 0.951994233333333

00:04:20.330 --> 00:04:21.818 more complex and in our brains,

NOTE Confidence: 0.951994233333333

00:04:21.820 --> 00:04:24.592 dynamic ways that reconfigure

NOTE Confidence: 0.951994233333333

00:04:24.592 --> 00:04:25.978 themselves constantly.

NOTE Confidence: 0.951994233333333

00:04:25.980 --> 00:04:27.852 Then we put the brain in the context

NOTE Confidence: 0.951994233333333

00:04:27.852 --> 00:04:29.905 of the body and we're learning more

NOTE Confidence: 0.951994233333333

00:04:29.905 --> 00:04:31.979 about how the brain affects the body.

NOTE Confidence: 0.951994233333333

00:04:31.980 --> 00:04:34.005 The mind affects other parts

NOTE Confidence: 0.951994233333333

00:04:34.005 --> 00:04:35.220 of brain function,

NOTE Confidence: 0.951994233333333

00:04:35.220 --> 00:04:36.720 the neurosystems affect other

NOTE Confidence: 0.951994233333333

00:04:36.720 --> 00:04:38.220 parts of brain function,

NOTE Confidence: 0.951994233333333

00:04:38.220 --> 00:04:39.540 how those affect the body,

NOTE Confidence: 0.951994233333333

00:04:39.540 --> 00:04:42.450 how the body affects the brain.

NOTE Confidence: 0.951994233333333

00:04:42.450 --> 00:04:43.862 We're learning about that,

NOTE Confidence: 0.951994233333333

00:04:43.862 --> 00:04:45.306 for example, the microbiome,

NOTE Confidence: 0.951994233333333

00:04:45.306 --> 00:04:48.250 all the bacteria that live in our gut,

NOTE Confidence: 0.951994233333333

00:04:48.250 --> 00:04:51.130 in fact, the way our brains work at times.

NOTE Confidence: 0.951994233333333

00:04:51.130 --> 00:04:53.446 And this then takes us into

NOTE Confidence: 0.951994233333333

00:04:53.446 --> 00:04:55.370 the realm of depression,

NOTE Confidence: 0.951994233333333

00:04:55.370 --> 00:04:56.130 anxiety,

NOTE Confidence: 0.951994233333333

00:04:56.130 --> 00:04:57.650 psychiatric problems,

NOTE Confidence: 0.951994233333333

00:04:57.650 --> 00:05:00.217 emotional problems and how they

NOTE Confidence: 0.951994233333333

00:05:00.217 --> 00:05:01.613 interact with body processes

NOTE Confidence: 0.951994233333333

00:05:01.613 --> 00:05:03.410 and in certain situations,

NOTE Confidence: 0.951994233333333

00:05:03.410 --> 00:05:05.634 how they interact with.

NOTE Confidence: 0.951994233333333

00:05:05.634 --> 00:05:06.746 Chronic diseases,

NOTE Confidence: 0.951994233333333

00:05:06.750 --> 00:05:08.380 which are affecting different parts

NOTE Confidence: 0.951994233333333

00:05:08.380 --> 00:05:11.042 of our bodies and the brain and the

NOTE Confidence: 0.951994233333333

00:05:11.042 --> 00:05:12.986 body interact in those processes too.

NOTE Confidence: 0.928660457272728

00:05:14.310 --> 00:05:16.452 Yeah, you know, it's it's really

NOTE Confidence: 0.928660457272728

00:05:16.452 --> 00:05:18.910 interesting when you kind of think about

NOTE Confidence: 0.928660457272728

00:05:18.910 --> 00:05:21.150 the brain and and the complexity that

NOTE Confidence: 0.928660457272728

00:05:21.220 --> 00:05:24.355 it has being really the Control Center

NOTE Confidence: 0.928660457272728

00:05:24.355 --> 00:05:28.012 for pretty much everything that our body

NOTE Confidence: 0.928660457272728

00:05:28.012 --> 00:05:30.860 does including controlling our emotions.

NOTE Confidence: 0.928660457272728

00:05:30.860 --> 00:05:32.858 When we think about cancer patients,

NOTE Confidence: 0.928660457272728

00:05:32.860 --> 00:05:35.614 however, we often think that this

NOTE Confidence: 0.928660457272728

00:05:35.614 --> 00:05:38.434 is a devastating diagnosis and that

NOTE Confidence: 0.928660457272728

00:05:38.434 --> 00:05:40.689 that just engenders this emotion

NOTE Confidence: 0.928660457272728

00:05:40.689 --> 00:05:42.740 of depression and anxiety.

NOTE Confidence: 0.928660457272728

00:05:42.740 --> 00:05:46.060 For for many patients who are facing this,

NOTE Confidence: 0.928660457272728

00:05:46.060 --> 00:05:46.970 this diagnosis,

NOTE Confidence: 0.928660457272728

00:05:46.970 --> 00:05:50.086 rarely do we actually think about, well,

NOTE Confidence: 0.928660457272728

00:05:50.086 --> 00:05:53.174 how does that work at a neuron level?

NOTE Confidence: 0.928660457272728

00:05:53.180 --> 00:05:56.564 So tell us more about how exactly that does

NOTE Confidence: 0.928660457272728

00:05:56.564 --> 00:05:59.997 work and what are the implications because.

NOTE Confidence: 0.928660457272728

00:06:00.000 --> 00:06:02.436 If this is just a matter of,

NOTE Confidence: 0.928660457272728

00:06:02.440 --> 00:06:05.200 you know, how neurons interact,

NOTE Confidence: 0.928660457272728

00:06:05.200 --> 00:06:06.700 well, maybe there's something that

NOTE Confidence: 0.928660457272728

00:06:06.700 --> 00:06:08.200 we can do about that.

NOTE Confidence: 0.972959575

00:06:09.280 --> 00:06:11.800 Absolutely, That's absolutely right.

NOTE Confidence: 0.93396391125

00:06:14.400 --> 00:06:16.400 So we know, First off to start with,

NOTE Confidence: 0.93396391125

00:06:16.400 --> 00:06:19.196 that different people react to different

NOTE Confidence: 0.93396391125

00:06:19.196 --> 00:06:21.880 life experiences in different ways and

NOTE Confidence: 0.93396391125

00:06:21.880 --> 00:06:24.280 those reactions may facilitate dealing

NOTE Confidence: 0.93396391125

00:06:24.280 --> 00:06:27.668 with the life situation, whether it be a.

NOTE Confidence: 0.93396391125

00:06:27.668 --> 00:06:29.503 Emotional work challenge or whether

NOTE Confidence: 0.93396391125

00:06:29.503 --> 00:06:32.220 it be a health challenge like cancer.

NOTE Confidence: 0.93396391125

00:06:32.220 --> 00:06:35.216 Or they could act aggravate the problems.

NOTE Confidence: 0.93396391125

00:06:35.220 --> 00:06:39.092 So we understand then that at this neuro

NOTE Confidence: 0.93396391125

00:06:39.092 --> 00:06:42.500 systems level we are reacting to processing,

NOTE Confidence: 0.93396391125

00:06:42.500 --> 00:06:45.020 regulating our emotions,

NOTE Confidence: 0.93396391125

00:06:45.020 --> 00:06:47.212 processing information and figuring

NOTE Confidence: 0.93396391125

00:06:47.212 --> 00:06:49.260 out just how am I going to respond

NOTE Confidence: 0.93396391125

00:06:49.318 --> 00:06:50.894 to that as a person who I am,

NOTE Confidence: 0.93396391125

00:06:50.900 --> 00:06:52.900 how am I going to deal with that?

NOTE Confidence: 0.93396391125

00:06:52.900 --> 00:06:55.438 And we know from studies that.

NOTE Confidence: 0.93396391125

00:06:55.440 --> 00:06:58.542 Many patients with cancer feel that

NOTE Confidence: 0.93396391125

00:06:58.542 --> 00:07:01.400 their depression compromises a recovery,

NOTE Confidence: 0.93396391125

00:07:01.400 --> 00:07:03.640 and many oncologists believe that

NOTE Confidence: 0.93396391125

00:07:03.640 --> 00:07:05.278 and there's data to support it.

NOTE Confidence: 0.93396391125

00:07:05.280 --> 00:07:08.032 So that's an example.

NOTE Confidence: 0.93396391125

00:07:08.032 --> 00:07:10.508 Depression in studies of people

NOTE Confidence: 0.93396391125

00:07:10.508 --> 00:07:13.190 with cancer have shown that the

NOTE Confidence: 0.93396391125

00:07:13.276 --> 00:07:17.021 presence of depression can compromise

NOTE Confidence: 0.93396391125

00:07:17.021 --> 00:07:18.519 survival significantly.

NOTE Confidence: 0.93396391125

00:07:18.520 --> 00:07:21.344 So right there we have multiple

NOTE Confidence: 0.93396391125

00:07:21.344 --> 00:07:23.840 reasons for wanting to.

NOTE Confidence: 0.93396391125

00:07:23.840 --> 00:07:25.916 Consider the options of how somebody

NOTE Confidence: 0.93396391125

00:07:25.916 --> 00:07:28.280 when faced with this real challenge,

NOTE Confidence: 0.93396391125

00:07:28.280 --> 00:07:28.991 as you say,

NOTE Confidence: 0.93396391125

00:07:28.991 --> 00:07:31.199 and these this threat to them as a person.

NOTE Confidence: 0.93396391125

00:07:31.200 --> 00:07:33.160 The complications of their lives,

NOTE Confidence: 0.93396391125

00:07:33.160 --> 00:07:35.104 the changes and the losses that

NOTE Confidence: 0.93396391125

00:07:35.104 --> 00:07:36.958 people experience in terms of the

NOTE Confidence: 0.93396391125

00:07:36.958 --> 00:07:38.464 type of activities that they can

NOTE Confidence: 0.93396391125

00:07:38.464 --> 00:07:40.453 do in the discomfort of involving

NOTE Confidence: 0.93396391125

00:07:40.453 --> 00:07:42.238 being involved in the treatments

NOTE Confidence: 0.93396391125

00:07:42.238 --> 00:07:44.520 and the anxiety about the outcomes.

NOTE Confidence: 0.93396391125

00:07:44.520 --> 00:07:49.066 And so many things change the way

NOTE Confidence: 0.93396391125

00:07:49.066 --> 00:07:50.704 people deal with that can make

NOTE Confidence: 0.93396391125

00:07:50.704 --> 00:07:52.110 a difference in the outcome.

NOTE Confidence: 0.93396391125

00:07:52.110 --> 00:07:54.438 And one of the ways that we label

NOTE Confidence: 0.93396391125

00:07:54.438 --> 00:07:56.203 differences in the way people may

NOTE Confidence: 0.93396391125

00:07:56.203 --> 00:07:58.246 deal with it is how anxious are

NOTE Confidence: 0.93396391125

00:07:58.246 --> 00:08:00.064 they or how depressed are they.

NOTE Confidence: 0.93396391125

00:08:00.070 --> 00:08:02.394 And so that becomes some place that

NOTE Confidence: 0.93396391125

00:08:02.394 --> 00:08:04.950 we can help people and intervene.

NOTE Confidence: 0.93396391125

00:08:04.950 --> 00:08:07.830 And digital neurotherapy is a new

NOTE Confidence: 0.93396391125

00:08:07.830 --> 00:08:10.334 type of intervention that's been

NOTE Confidence: 0.93396391125

00:08:10.334 --> 00:08:12.721 proven to reduce depression without

NOTE Confidence: 0.93396391125

00:08:12.721 --> 00:08:14.947 medication and without any side effects.

NOTE Confidence: 0.9402536

00:08:17.390 --> 00:08:19.130 So I mean it certainly

NOTE Confidence: 0.9402536

00:08:19.130 --> 00:08:20.870 makes sense that those who.

NOTE Confidence: 0.9402536

00:08:20.870 --> 00:08:22.670 May suffer from depression.

NOTE Confidence: 0.9402536

00:08:22.670 --> 00:08:24.470 May have worse survivals.

NOTE Confidence: 0.9402536

00:08:24.470 --> 00:08:26.591 I mean, because certainly it may not

NOTE Confidence: 0.9402536

00:08:26.591 --> 00:08:28.508 be the depression in and of itself,

NOTE Confidence: 0.9402536

00:08:28.510 --> 00:08:30.706 but the effects of that depression.

NOTE Confidence: 0.9402536

00:08:30.710 --> 00:08:32.264 Too depressed to get out of bed.

NOTE Confidence: 0.9402536

00:08:32.270 --> 00:08:34.146 I'm too depressed to take my medicine.

NOTE Confidence: 0.9402536

00:08:34.150 --> 00:08:36.270 I'm too depressed to go to the doctor.

NOTE Confidence: 0.9402536

00:08:36.270 --> 00:08:39.430 I'm too depressed to do much of anything.

NOTE Confidence: 0.9402536

00:08:39.430 --> 00:08:42.340 And so that has ramifications.

NOTE Confidence: 0.9402536

00:08:42.340 --> 00:08:44.895 But tell us more about digital neurotherapy.

NOTE Confidence: 0.9402536

00:08:44.900 --> 00:08:46.685 I'm not certain that many of our

NOTE Confidence: 0.9402536

00:08:46.685 --> 00:08:47.899 listeners know what that is.

NOTE Confidence: 0.946543225

00:08:48.260 --> 00:08:50.580 They probably don't because it's a new class,

NOTE Confidence: 0.946543225

00:08:50.580 --> 00:08:53.388 a new type of treatment of CNS or brain

NOTE Confidence: 0.946543225

00:08:53.388 --> 00:08:55.299 disorders and emotional disorders.

NOTE Confidence: 0.946543225

00:08:55.300 --> 00:08:57.010 And you're absolutely right about the

NOTE Confidence: 0.946543225

00:08:57.010 --> 00:08:58.818 things you say that the mechanisms

NOTE Confidence: 0.946543225

00:08:58.818 --> 00:09:00.953 on the behavioral level that we can

NOTE Confidence: 0.946543225

00:09:00.953 --> 00:09:02.816 understand how cancer might a depression,

NOTE Confidence: 0.946543225

00:09:02.820 --> 00:09:05.648 I'm sorry, might impact.

NOTE Confidence: 0.946543225

00:09:05.650 --> 00:09:07.966 Health and survival in cancer patients

NOTE Confidence: 0.946543225

00:09:07.966 --> 00:09:10.282 and other patients with other medical

NOTE Confidence: 0.946543225

00:09:10.282 --> 00:09:12.406 diseases because it's just as big

NOTE Confidence: 0.946543225

00:09:12.406 --> 00:09:14.566 an impact in cardiovascular disease

NOTE Confidence: 0.946543225

00:09:14.566 --> 00:09:16.786 or diabetes addition might to the

NOTE Confidence: 0.946543225

00:09:16.786 --> 00:09:19.066 things you listed in these patients,

NOTE Confidence: 0.946543225

00:09:19.066 --> 00:09:21.690 people might exercise less,

NOTE Confidence: 0.946543225

00:09:21.690 --> 00:09:23.394 might have less social contact in

NOTE Confidence: 0.946543225

00:09:23.394 --> 00:09:25.100 the social world, supports us,

NOTE Confidence: 0.946543225

00:09:25.100 --> 00:09:26.800 might have compromised immune

NOTE Confidence: 0.946543225

00:09:26.800 --> 00:09:27.650 system function.

NOTE Confidence: 0.946543225

00:09:27.650 --> 00:09:29.837 So those are some just to add to your

NOTE Confidence: 0.946543225

00:09:29.837 --> 00:09:32.408 list of our understanding of the mechanisms,

NOTE Confidence: 0.946543225

00:09:32.410 --> 00:09:35.330 but what is digital neurotherapy?

NOTE Confidence: 0.946543225

00:09:35.330 --> 00:09:38.314 So remember I said that it is these

NOTE Confidence: 0.946543225

00:09:38.314 --> 00:09:40.582 neuro systems that integrate action

NOTE Confidence: 0.946543225

00:09:40.582 --> 00:09:43.186 of a hundreds of millions of neurons

NOTE Confidence: 0.946543225

00:09:43.186 --> 00:09:45.772 that are are the place where we are

NOTE Confidence: 0.946543225

00:09:45.772 --> 00:09:48.174 emotions arise from and are also our

NOTE Confidence: 0.946543225

00:09:48.174 --> 00:09:50.019 cognitive abilities and our ability

NOTE Confidence: 0.946543225

00:09:50.019 --> 00:09:53.035 to regulate emotion to a set of these

NOTE Confidence: 0.946543225

00:09:53.035 --> 00:09:54.820 functions are called executive cognitive

NOTE Confidence: 0.946543225

00:09:54.890 --> 00:09:57.050 functions that are defined as those

NOTE Confidence: 0.946543225

00:09:57.050 --> 00:10:00.428 that are cognitive functions important for.

NOTE Confidence: 0.946543225

00:10:00.430 --> 00:10:01.990 Regulating and managing ourselves

NOTE Confidence: 0.946543225

00:10:01.990 --> 00:10:03.940 and our feelings and information

NOTE Confidence: 0.946543225

00:10:03.940 --> 00:10:05.270 from the environment.

NOTE Confidence: 0.946543225

00:10:05.270 --> 00:10:07.710 So that is is, is,

NOTE Confidence: 0.946543225

00:10:07.710 --> 00:10:10.314 is a target that we'd like to

NOTE Confidence: 0.946543225

00:10:10.314 --> 00:10:12.190 enhance those particular functions.

NOTE Confidence: 0.946543225

00:10:12.190 --> 00:10:12.527 Now,

NOTE Confidence: 0.946543225

00:10:12.527 --> 00:10:15.223 we also know from work done in the

NOTE Confidence: 0.946543225

00:10:15.230 --> 00:10:19.168 1950s that in after birth is when

NOTE Confidence: 0.946543225

00:10:19.168 --> 00:10:20.913 these neuro systems are shaped

NOTE Confidence: 0.946543225

00:10:20.913 --> 00:10:23.389 not by our genetics primarily,

NOTE Confidence: 0.946543225

00:10:23.390 --> 00:10:25.790 but by experience from the environment.

NOTE Confidence: 0.946543225

00:10:25.790 --> 00:10:27.644 Hubel and Weisel got the Nobel

NOTE Confidence: 0.946543225

00:10:27.644 --> 00:10:28.880 Prize for showing the.

NOTE Confidence: 0.946543225

00:10:28.880 --> 00:10:31.202 Degree to which our frames are

NOTE Confidence: 0.946543225

00:10:31.202 --> 00:10:32.750 shaped structure and function

NOTE Confidence: 0.946543225

00:10:32.822 --> 00:10:35.136 these neurosystems after birth by

NOTE Confidence: 0.946543225

00:10:35.136 --> 00:10:36.640 stimulation from the environment.

NOTE Confidence: 0.946543225

00:10:36.640 --> 00:10:38.995 Now how does their digital

NOTE Confidence: 0.946543225

00:10:38.995 --> 00:10:40.879 neurotherapy fit into that?

NOTE Confidence: 0.946543225

00:10:40.880 --> 00:10:42.645 Imagine if you're going around

NOTE Confidence: 0.946543225

00:10:42.645 --> 00:10:44.733 the corner and you're trying to

NOTE Confidence: 0.946543225

00:10:44.733 --> 00:10:46.837 decide if it's a bear or a delivery

NOTE Confidence: 0.946543225

00:10:46.837 --> 00:10:47.999 truck coming at you.

NOTE Confidence: 0.946543225

00:10:48.000 --> 00:10:51.000 The only information you have is the

NOTE Confidence: 0.946543225

00:10:51.000 --> 00:10:53.560 pattern in the light waves coming to your

NOTE Confidence: 0.946543225

00:10:53.627 --> 00:10:56.154 eye that are reflected off the object.

NOTE Confidence: 0.946543225

00:10:56.160 --> 00:10:56.928 We may think, oh,

NOTE Confidence: 0.946543225

00:10:56.928 --> 00:10:58.080 I'm going to figure this out.

NOTE Confidence: 0.946543225

00:10:58.080 --> 00:10:59.235 Let me look at it this way.

NOTE Confidence: 0.946543225

00:10:59.240 --> 00:11:00.492 What could that be?

NOTE Confidence: 0.946543225

00:11:00.492 --> 00:11:02.080 The only information,

NOTE Confidence: 0.946543225

00:11:02.080 --> 00:11:05.068 the only data coming into your brain is a

NOTE Confidence: 0.946543225

00:11:05.068 --> 00:11:07.918 pattern of light waves coming into your eye.

NOTE Confidence: 0.946543225

00:11:07.920 --> 00:11:10.953 Now, if it's a bear or a delivery truck,

NOTE Confidence: 0.946543225

00:11:10.960 --> 00:11:13.120 it activates very different neural systems,

NOTE Confidence: 0.946543225

00:11:13.120 --> 00:11:13.752 right?

NOTE Confidence: 0.946543225

00:11:13.752 --> 00:11:15.016 Different feelings,

NOTE Confidence: 0.946543225

00:11:15.016 --> 00:11:16.280 different behaviors.

NOTE Confidence: 0.946543225

00:11:16.280 --> 00:11:17.549 So digital neurotherapy,

NOTE Confidence: 0.946543225

00:11:17.549 --> 00:11:20.510 we use the eyes and ears to

NOTE Confidence: 0.946543225

00:11:20.592 --> 00:11:23.437 physically interact with the brain.

NOTE Confidence: 0.946543225

00:11:23.440 --> 00:11:26.324 But we have much more precise control

NOTE Confidence: 0.946543225

00:11:26.324 --> 00:11:28.376 and smaller differences between whether

NOTE Confidence: 0.946543225

00:11:28.376 --> 00:11:31.360 it's a bear or a delivery truck.

NOTE Confidence: 0.946543225

00:11:31.360 --> 00:11:33.425 So Digital Neuro Therapy looks

NOTE Confidence: 0.946543225

00:11:33.425 --> 00:11:35.077 like a computer game,

NOTE Confidence: 0.946543225

00:11:35.080 --> 00:11:39.120 but it's actually carefully crafted,

NOTE Confidence: 0.946543225

00:11:39.120 --> 00:11:43.504 incrementally changing challenges,

NOTE Confidence: 0.946543225

00:11:43.504 --> 00:11:46.800 perceptual and cognitive processing

NOTE Confidence: 0.946543225

00:11:46.800 --> 00:11:49.505 that each one activates a

NOTE Confidence: 0.946543225

00:11:49.505 --> 00:11:51.669 slightly different neuro system.

NOTE Confidence: 0.946543225

00:11:51.670 --> 00:11:53.749 So why is this applicable to depression?

NOTE Confidence: 0.946543225

00:11:53.750 --> 00:11:54.266 Well,

NOTE Confidence: 0.946543225

00:11:54.266 --> 00:11:56.846 depression itself now is understood

NOTE Confidence: 0.946543225

00:11:56.846 --> 00:11:58.910 as a neurosystems disorder.

NOTE Confidence: 0.946543225

00:11:58.910 --> 00:12:01.490 The frontal executive systems of

NOTE Confidence: 0.946543225

00:12:01.490 --> 00:12:04.070 the brain that regulate emotion,

NOTE Confidence: 0.946543225

00:12:04.070 --> 00:12:08.550 regulate negative feelings are impaired,

NOTE Confidence: 0.946543225

00:12:08.550 --> 00:12:10.300 and the negative feeling parts

NOTE Confidence: 0.946543225

00:12:10.300 --> 00:12:12.050 of the brain start to

NOTE Confidence: 0.9553487

00:12:12.117 --> 00:12:14.405 actually overwhelm these executive

NOTE Confidence: 0.9553487

00:12:14.405 --> 00:12:16.338 control systems. And then.

NOTE Confidence: 0.9553487

00:12:16.338 --> 00:12:19.490 It gets worse and worse because there's more

NOTE Confidence: 0.9553487

00:12:19.568 --> 00:12:22.704 and more dysregulation of the emotion part.

NOTE Confidence: 0.9553487

00:12:22.710 --> 00:12:25.775 So we can actually strengthen those

NOTE Confidence: 0.9553487

00:12:25.775 --> 00:12:28.115 frontal executive control systems

NOTE Confidence: 0.9553487

00:12:28.115 --> 00:12:31.193 by exercising them the same what

NOTE Confidence: 0.9553487

00:12:31.193 --> 00:12:33.398 we call active activity dependent

NOTE Confidence: 0.9553487

00:12:33.398 --> 00:12:35.710 enhancement of the neural systems.

NOTE Confidence: 0.9553487

00:12:35.710 --> 00:12:37.170 That's the same thing that

NOTE Confidence: 0.9553487

00:12:37.170 --> 00:12:38.630 shaped them at the beginning.

NOTE Confidence: 0.9553487

00:12:38.630 --> 00:12:41.374 That's how our brains evolved so wonderfully

NOTE Confidence: 0.9553487

00:12:41.374 --> 00:12:43.899 to be responsive to our environments.

NOTE Confidence: 0.9553487

00:12:43.900 --> 00:12:46.380 So we harness that neuroplastic

NOTE Confidence: 0.9553487

00:12:46.380 --> 00:12:49.713 potential using the eyes and ears and

NOTE Confidence: 0.9553487

00:12:49.713 --> 00:12:53.620 input as input pathways and present

NOTE Confidence: 0.9553487

00:12:53.620 --> 00:12:56.436 very carefully crafted incrementally

NOTE Confidence: 0.9553487

00:12:56.436 --> 00:12:58.772 changing cognitive and perceptual tasks.

NOTE Confidence: 0.9553487

00:12:58.772 --> 00:13:01.220 And those then activate the parts

NOTE Confidence: 0.9553487

00:13:01.287 --> 00:13:03.495 of the brain and that that we need

NOTE Confidence: 0.9553487

00:13:03.495 --> 00:13:05.946 to target to strengthen and when

NOTE Confidence: 0.9553487

00:13:05.946 --> 00:13:07.778 they're activated that produces

NOTE Confidence: 0.9553487

00:13:07.778 --> 00:13:09.233 activity dependent enhancement.

NOTE Confidence: 0.9553487

00:13:09.233 --> 00:13:11.365 Now we've demonstrated this

NOTE Confidence: 0.9553487

00:13:11.365 --> 00:13:12.964 with brain imaging.

NOTE Confidence: 0.9553487

00:13:12.970 --> 00:13:14.338 That we are actually

NOTE Confidence: 0.9553487

00:13:14.338 --> 00:13:15.364 changing brain activation.

NOTE Confidence: 0.9553487

00:13:15.370 --> 00:13:17.074 We've demonstrated in depression

NOTE Confidence: 0.9553487

00:13:17.074 --> 00:13:18.778 they were actually changing

NOTE Confidence: 0.9553487

00:13:18.778 --> 00:13:20.604 the connectivity in the brain

NOTE Confidence: 0.9553487

00:13:20.604 --> 00:13:22.124 that creates the neuro systems.

NOTE Confidence: 0.9553487

00:13:22.130 --> 00:13:24.260 And we've demonstrated in multiple

NOTE Confidence: 0.9553487

00:13:24.260 --> 00:13:27.226 published studies now in the top journals

NOTE Confidence: 0.9553487

00:13:27.226 --> 00:13:30.305 that this type of intervention reduces

NOTE Confidence: 0.9553487

00:13:30.305 --> 00:13:33.000 depressed mood more effectively than

NOTE Confidence: 0.9553487

00:13:33.078 --> 00:13:35.848 medicine and also improves cognition

NOTE Confidence: 0.9553487

00:13:35.850 --> 00:13:38.681 is a side benefit by the way for

NOTE Confidence: 0.9553487

00:13:38.681 --> 00:13:41.036 people with cancer because sometimes.

NOTE Confidence: 0.9553487

00:13:41.040 --> 00:13:43.518 The treatments for cancer can compromise.

NOTE Confidence: 0.9553487

00:13:43.520 --> 00:13:45.936 As we know called chemo brain are

NOTE Confidence: 0.9553487

00:13:45.936 --> 00:13:47.440 thinking and cognitive functions.

NOTE Confidence: 0.9553487

00:13:47.440 --> 00:13:49.428 So we're enhancing those at the same

NOTE Confidence: 0.9553487

00:13:49.428 --> 00:13:51.079 time with digital neuro therapy.

NOTE Confidence: 0.9553487

00:13:51.080 --> 00:13:53.040 So it looks like a computer game,

NOTE Confidence: 0.9553487

00:13:53.040 --> 00:13:55.136 but it's crafted the way I said to

NOTE Confidence: 0.9553487

00:13:55.136 --> 00:13:57.040 harness the brains neuro potential,

NOTE Confidence: 0.9553487

00:13:57.040 --> 00:13:58.591 neuroplastic potential to

NOTE Confidence: 0.9553487

00:13:58.591 --> 00:14:00.659 enhance under functioning neuro

NOTE Confidence: 0.9553487

00:14:00.659 --> 00:14:02.800 systems that regulate emotion.

NOTE Confidence: 0.957025933333333

00:14:03.680 --> 00:14:05.812 Wow, that sounds really,

NOTE Confidence: 0.957025933333333

00:14:05.812 --> 00:14:06.878 really interesting,

NOTE Confidence: 0.957025933333333

00:14:06.880 --> 00:14:09.393 but we're going to pick up this

NOTE Confidence: 0.957025933333333

00:14:09.393 --> 00:14:11.270 conversation and learn more about.

NOTE Confidence: 0.957025933333333

00:14:11.270 --> 00:14:12.800 Digital Neurotherapy and how it

NOTE Confidence: 0.957025933333333

00:14:12.800 --> 00:14:14.714 can be used to address depression

NOTE Confidence: 0.957025933333333

00:14:14.714 --> 00:14:16.940 and anxiety right after we take a

NOTE Confidence: 0.957025933333333

00:14:16.940 --> 00:14:18.828 short break for a medical minute.

NOTE Confidence: 0.94179736

00:14:19.550 --> 00:14:21.550 Funding for Yale Cancer Answers

NOTE Confidence: 0.94179736

00:14:21.550 --> 00:14:23.550 comes from Smilow Cancer Hospital,

NOTE Confidence: 0.94179736

00:14:23.550 --> 00:14:25.790 where their oncodermatology program

NOTE Confidence: 0.94179736

00:14:25.790 --> 00:14:27.470 treats dermatologic concerns,

NOTE Confidence: 0.94179736

00:14:27.470 --> 00:14:29.475 including very dry skin, itching,

NOTE Confidence: 0.94179736

00:14:29.475 --> 00:14:31.480 and skin changes that arise as

NOTE Confidence: 0.94179736

00:14:31.554 --> 00:14:33.630 side effects from chemotherapy.

NOTE Confidence: 0.94179736

00:14:33.630 --> 00:14:37.740 Smilowcancerhospital.org.

NOTE Confidence: 0.94179736

00:14:37.740 --> 00:14:39.510 It's estimated that over 240,000

NOTE Confidence: 0.94179736

00:14:39.510 --> 00:14:42.232 men in the US will be diagnosed

NOTE Confidence: 0.94179736

00:14:42.232 --> 00:14:44.417 with prostate cancer this year,

NOTE Confidence: 0.94179736

00:14:44.420 --> 00:14:46.892 with over 3000 new cases being

NOTE Confidence: 0.94179736

00:14:46.892 --> 00:14:48.540 identified here in Connecticut.

NOTE Confidence: 0.94179736

00:14:48.540 --> 00:14:50.580 One in eight American men will

NOTE Confidence: 0.94179736

00:14:50.580 --> 00:14:51.940 develop prostate cancer in

NOTE Confidence: 0.94179736

00:14:52.006 --> 00:14:53.616 the course of his lifetime.

NOTE Confidence: 0.94179736

00:14:53.620 --> 00:14:55.672 Major advances in the detection and

NOTE Confidence: 0.94179736

00:14:55.672 --> 00:14:57.409 treatment of prostate cancer have

NOTE Confidence: 0.94179736

00:14:57.409 --> 00:14:58.649 dramatically decreased the number

NOTE Confidence: 0.94179736

00:14:58.649 --> 00:15:00.900 of men who die from the disease.

NOTE Confidence: 0.94179736

00:15:00.900 --> 00:15:02.750 Screening can be performed quickly

NOTE Confidence: 0.94179736

00:15:02.750 --> 00:15:04.600 and easily in a physician's

NOTE Confidence: 0.94179736

00:15:04.660 --> 00:15:06.450 office using two simple tests.

NOTE Confidence: 0.94179736

00:15:06.450 --> 00:15:08.844 A physical exam and a blood test.

NOTE Confidence: 0.94179736

00:15:08.850 --> 00:15:11.255 Clinical trials are currently underway

NOTE Confidence: 0.94179736

00:15:11.255 --> 00:15:13.179 at federally designated comprehensive

NOTE Confidence: 0.94179736

00:15:13.179 --> 00:15:15.311 Cancer Centers such as Yale Cancer

NOTE Confidence: 0.94179736

00:15:15.311 --> 00:15:17.490 Center and Smilow Cancer Hospital,

NOTE Confidence: 0.94179736

00:15:17.490 --> 00:15:19.465 where doctors are also using

NOTE Confidence: 0.94179736

00:15:19.465 --> 00:15:20.650 the Artemis machine,

NOTE Confidence: 0.94179736

00:15:20.650 --> 00:15:22.570 which enables targeted biopsies

NOTE Confidence: 0.94179736

00:15:22.570 --> 00:15:24.010 to be performed.

NOTE Confidence: 0.94179736

00:15:24.010 --> 00:15:26.282 More information is available

NOTE Confidence: 0.94179736

00:15:26.282 --> 00:15:27.272 at yalecancercenter.org.

NOTE Confidence: 0.94179736

00:15:27.272 --> 00:15:29.804 You're listening to Connecticut Public Radio.

NOTE Confidence: 0.95031711

00:15:31.150 --> 00:15:33.148 Welcome back to Yale Cancer Answers.

NOTE Confidence: 0.95031711

00:15:33.150 --> 00:15:34.710 This is Doctor Anees Chagpar,

NOTE Confidence: 0.95031711

00:15:34.710 --> 00:15:36.789 and I'm joined tonight by my guest,

NOTE Confidence: 0.95031711

00:15:36.790 --> 00:15:38.116 Doctor Bruce Wexler.

NOTE Confidence: 0.95031711

00:15:38.116 --> 00:15:40.768 We're talking about ways to address

NOTE Confidence: 0.95031711

00:15:40.768 --> 00:15:43.192 depression and anxiety in cancer

NOTE Confidence: 0.95031711

00:15:43.192 --> 00:15:45.104 patients using digital neurotherapy.

NOTE Confidence: 0.95031711

00:15:45.110 --> 00:15:47.750 So before the break, Doctor Wexler,

NOTE Confidence: 0.95031711

00:15:47.750 --> 00:15:49.766 you were telling us that this

NOTE Confidence: 0.95031711

00:15:49.766 --> 00:15:51.510 looks like a computer game,

NOTE Confidence: 0.95031711

00:15:51.510 --> 00:15:55.157 but it's carefully crafted so that it

NOTE Confidence: 0.95031711

00:15:55.157 --> 00:15:58.369 actually exercises or strengthens executive.

NOTE Confidence: 0.95031711

00:15:58.369 --> 00:16:01.264 Portions of your brain that

NOTE Confidence: 0.95031711

00:16:01.264 --> 00:16:04.184 are underutilized so that you

NOTE Confidence: 0.95031711

00:16:04.184 --> 00:16:07.226 actually can improve the manner in

NOTE Confidence: 0.95031711

00:16:07.226 --> 00:16:10.332 which you respond to a stressful

NOTE Confidence: 0.95031711

00:16:10.332 --> 00:16:12.984 or emotional stimulus and can

NOTE Confidence: 0.95031711

00:16:12.984 --> 00:16:14.694 improve your cognition as well.

NOTE Confidence: 0.95031711

00:16:14.700 --> 00:16:15.339 Is that right?

NOTE Confidence: 0.9300147875

00:16:15.740 --> 00:16:17.140 That's absolutely right. Yeah.

NOTE Confidence: 0.9402536

00:16:17.940 --> 00:16:20.340 So a couple of questions.

NOTE Confidence: 0.9402536

00:16:20.340 --> 00:16:24.980 First off, it sounds like this would be

NOTE Confidence: 0.9402536

00:16:24.980 --> 00:16:28.280 something that people should be doing.

NOTE Confidence: 0.9402536

00:16:28.280 --> 00:16:32.550 Lifelong Why wait until they get cancer to

NOTE Confidence: 0.9402536

00:16:32.550 --> 00:16:35.280 start exercising this part of the brain?

NOTE Confidence: 0.9402536

00:16:35.280 --> 00:16:37.996 Is there a right time to start

NOTE Confidence: 0.9402536

00:16:37.996 --> 00:16:39.160 using digital neurotherapy?

NOTE Confidence: 0.9402536

00:16:39.160 --> 00:16:40.735 And it doesn't really need

NOTE Confidence: 0.9402536

00:16:40.735 --> 00:16:41.995 to be a neurotherapy?

NOTE Confidence: 0.9402536

00:16:42.000 --> 00:16:44.544 Or could it actually be, you know,

NOTE Confidence: 0.9402536

00:16:44.544 --> 00:16:47.360 a downloadable app that you can play with

NOTE Confidence: 0.9402536

00:16:47.433 --> 00:16:49.913 if it truly is like a computer game,

NOTE Confidence: 0.9402536

00:16:49.920 --> 00:16:51.754 But that just has the side benefit

NOTE Confidence: 0.9402536

00:16:51.754 --> 00:16:53.399 of making your brain stronger.

NOTE Confidence: 0.944566485714286

00:16:54.760 --> 00:16:55.604 Great questions.

NOTE Confidence: 0.944566485714286

00:16:55.604 --> 00:16:57.714 It is a downloadable app.

NOTE Confidence: 0.944566485714286

00:16:57.720 --> 00:16:59.322 That's exactly what it's used and

NOTE Confidence: 0.944566485714286

00:16:59.322 --> 00:17:00.760 it's available for people to use.

NOTE Confidence: 0.944566485714286

00:17:00.760 --> 00:17:03.436 Now. Now, who should use it,

NOTE Confidence: 0.944566485714286

00:17:03.440 --> 00:17:06.128 when they should use it and why they

NOTE Confidence: 0.944566485714286

00:17:06.128 --> 00:17:08.876 should use it are really key questions.

NOTE Confidence: 0.944566485714286

00:17:08.880 --> 00:17:11.764 If we step back from a therapy

NOTE Confidence: 0.944566485714286

00:17:11.764 --> 00:17:13.353 perspective and say, well,

NOTE Confidence: 0.944566485714286

00:17:13.353 --> 00:17:15.824 what about all these processes of how

NOTE Confidence: 0.944566485714286

00:17:15.824 --> 00:17:18.622 our brains are shaped by the environment

NOTE Confidence: 0.944566485714286

00:17:18.622 --> 00:17:21.165 and strengthening our ability to manage

NOTE Confidence: 0.944566485714286

00:17:21.165 --> 00:17:23.400 ourselves and manage our emotions,

NOTE Confidence: 0.944566485714286

00:17:23.400 --> 00:17:25.260 that's what we do.

NOTE Confidence: 0.944566485714286

00:17:25.260 --> 00:17:27.786 In schools, that's what we do in growing up.

NOTE Confidence: 0.944566485714286

00:17:27.790 --> 00:17:29.490 That's what we do in

NOTE Confidence: 0.944566485714286

00:17:29.490 --> 00:17:30.510 processing life experience,

NOTE Confidence: 0.944566485714286

00:17:30.510 --> 00:17:33.014 and that's what we do with the input

NOTE Confidence: 0.944566485714286

00:17:33.014 --> 00:17:35.027 that's coming into us all the time.

NOTE Confidence: 0.944566485714286

00:17:35.030 --> 00:17:36.594 It's shaping our brains.

NOTE Confidence: 0.944566485714286

00:17:36.594 --> 00:17:38.549 Every night they get reshaped.

NOTE Confidence: 0.944566485714286

00:17:38.550 --> 00:17:39.870 So this happens.

NOTE Confidence: 0.944566485714286

00:17:39.870 --> 00:17:42.950 Why would we want to do something

NOTE Confidence: 0.944566485714286

00:17:42.950 --> 00:17:46.450 more specific to focus it? Well,

NOTE Confidence: 0.944566485714286

00:17:46.450 --> 00:17:48.830 we already make big attempts with education,

NOTE Confidence: 0.944566485714286

00:17:48.830 --> 00:17:50.150 for example, right?

NOTE Confidence: 0.944566485714286

00:17:50.150 --> 00:17:51.508 A major feature.

NOTE Confidence: 0.944566485714286

00:17:51.508 --> 00:17:53.898 Of modern societies or schools

NOTE Confidence: 0.944566485714286

00:17:53.898 --> 00:17:57.245 where we put together a certain type

NOTE Confidence: 0.944566485714286

00:17:57.245 --> 00:17:59.500 of expertise and curriculum and

NOTE Confidence: 0.944566485714286

00:17:59.500 --> 00:18:02.548 activities specifically to shape

NOTE Confidence: 0.944566485714286

00:18:02.548 --> 00:18:07.120 the brain in the neuroplastic change

NOTE Confidence: 0.944566485714286

00:18:07.237 --> 00:18:10.080 period when their brain is being

NOTE Confidence: 0.944566485714286

00:18:10.080 --> 00:18:12.260 really actively shaped in childhood.

NOTE Confidence: 0.944566485714286

00:18:12.260 --> 00:18:14.605 So in this we actually have a

NOTE Confidence: 0.944566485714286

00:18:14.605 --> 00:18:16.600 whole program for schools and

NOTE Confidence: 0.944566485714286

00:18:16.600 --> 00:18:18.700 we and why in schools?

NOTE Confidence: 0.944566485714286

00:18:18.700 --> 00:18:21.733 Why not just let the curriculum do its job.

NOTE Confidence: 0.944566485714286

00:18:21.740 --> 00:18:22.284 Well,

NOTE Confidence: 0.944566485714286

00:18:22.284 --> 00:18:24.460 there we specifically addressing

NOTE Confidence: 0.944566485714286

00:18:24.460 --> 00:18:27.180 achievement gaps related to poverty

NOTE Confidence: 0.944566485714286

00:18:27.180 --> 00:18:29.310 because they are the children just

NOTE Confidence: 0.944566485714286

00:18:29.310 --> 00:18:31.139 haven't had the experiences that

NOTE Confidence: 0.944566485714286

00:18:31.139 --> 00:18:33.203 they need to promote development of

NOTE Confidence: 0.944566485714286

00:18:33.203 --> 00:18:35.259 these neuro systems and in fact have

NOTE Confidence: 0.944566485714286

00:18:35.259 --> 00:18:37.740 some bad type of experiences that

NOTE Confidence: 0.944566485714286

00:18:37.740 --> 00:18:39.568 actually compromise the development

NOTE Confidence: 0.944566485714286

00:18:39.568 --> 00:18:41.853 of the executive functional systems.

NOTE Confidence: 0.944566485714286

00:18:41.860 --> 00:18:43.792 So there I call it a school

NOTE Confidence: 0.944566485714286

00:18:43.792 --> 00:18:45.300 lunch program for the brain,

NOTE Confidence: 0.944566485714286

00:18:45.300 --> 00:18:47.670 just like we give children

NOTE Confidence: 0.944566485714286

00:18:47.670 --> 00:18:49.566 from less ideal backgrounds.

NOTE Confidence: 0.944566485714286

00:18:49.570 --> 00:18:51.354 Additional food in school,

NOTE Confidence: 0.944566485714286

00:18:51.354 --> 00:18:54.030 they actually then grow faster and

NOTE Confidence: 0.944566485714286

00:18:54.112 --> 00:18:56.527 and reach their growth potential.

NOTE Confidence: 0.944566485714286

00:18:56.530 --> 00:18:57.946 Same thing with this.

NOTE Confidence: 0.944566485714286

00:18:57.946 --> 00:18:59.008 So you hear,

NOTE Confidence: 0.944566485714286

00:18:59.010 --> 00:19:01.103 you see we're addressing a a problem

NOTE Confidence: 0.944566485714286

00:19:01.103 --> 00:19:02.977 that can build on itself, right?

NOTE Confidence: 0.944566485714286

00:19:02.977 --> 00:19:04.612 Because the children then don't

NOTE Confidence: 0.944566485714286

00:19:04.612 --> 00:19:06.606 aren't prepared to no fault of

NOTE Confidence: 0.944566485714286

00:19:06.606 --> 00:19:08.186 their own neurologically to meet

NOTE Confidence: 0.944566485714286

00:19:08.186 --> 00:19:10.169 the demands made of them in school.

NOTE Confidence: 0.944566485714286

00:19:10.170 --> 00:19:13.542 And this sets off a problematic

NOTE Confidence: 0.944566485714286

00:19:13.542 --> 00:19:15.228 development developmental trajectory.

NOTE Confidence: 0.944566485714286

00:19:15.230 --> 00:19:16.680 Affecting how they think and

NOTE Confidence: 0.944566485714286

00:19:16.680 --> 00:19:17.550 feel about themselves,

NOTE Confidence: 0.944566485714286

00:19:17.550 --> 00:19:19.986 how they engage with the school curriculum.

NOTE Confidence: 0.944566485714286

00:19:19.990 --> 00:19:21.803 They lose the second time they come

NOTE Confidence: 0.944566485714286

00:19:21.803 --> 00:19:24.128 to school where they're supposed to be

NOTE Confidence: 0.944566485714286

00:19:24.128 --> 00:19:25.624 getting this educational enrichment,

NOTE Confidence: 0.944566485714286

00:19:25.630 --> 00:19:27.830 they can't engage with it.

NOTE Confidence: 0.944566485714286

00:19:27.830 --> 00:19:29.576 And so that's the type of

NOTE Confidence: 0.944566485714286

00:19:29.576 --> 00:19:31.030 situation where you would say,

NOTE Confidence: 0.944566485714286

00:19:31.030 --> 00:19:31.358 yeah,

NOTE Confidence: 0.944566485714286

00:19:31.358 --> 00:19:33.982 well there is when we really need this

NOTE Confidence: 0.944566485714286

00:19:33.982 --> 00:19:37.859 sort of intervention now in certain.

NOTE Confidence: 0.944566485714286

00:19:37.860 --> 00:19:39.140 For a variety of reasons,

NOTE Confidence: 0.944566485714286

00:19:39.140 --> 00:19:41.054 and I'm speaking as a psychiatrist

NOTE Confidence: 0.944566485714286

00:19:41.054 --> 00:19:43.081 for a variety of reasons which

NOTE Confidence: 0.944566485714286

00:19:43.081 --> 00:19:45.145 have to do with cascading effects

NOTE Confidence: 0.944566485714286

00:19:45.145 --> 00:19:47.459 of life experiences and stresses,

NOTE Confidence: 0.944566485714286

00:19:47.460 --> 00:19:48.396 genetic predispositions.

NOTE Confidence: 0.944566485714286

00:19:48.396 --> 00:19:52.140 Our brains all start off in different ways.

NOTE Confidence: 0.944566485714286

00:19:52.140 --> 00:19:54.300 Some people develop their brain

NOTE Confidence: 0.944566485714286

00:19:54.300 --> 00:19:56.460 systems in certain ways that

NOTE Confidence: 0.944566485714286

00:19:56.537 --> 00:19:58.697 have limitations and problems,

NOTE Confidence: 0.944566485714286

00:19:58.700 --> 00:20:00.578 and they seek help for that.

NOTE Confidence: 0.944566485714286

00:20:00.580 --> 00:20:03.490 It could be seeing a psychiatrist

NOTE Confidence: 0.944566485714286

00:20:03.490 --> 00:20:05.800 for a talk therapy that can help

NOTE Confidence: 0.944566485714286

00:20:05.870 --> 00:20:07.830 restructure those neuro systems.

NOTE Confidence: 0.944566485714286

00:20:07.830 --> 00:20:10.110 Because you're feel very sensitive,

NOTE Confidence: 0.944566485714286

00:20:10.110 --> 00:20:12.990 say to rejection or you don't have a

NOTE Confidence: 0.932102266666666

00:20:12.990 --> 00:20:14.458 confidence in nothing yourself

NOTE Confidence: 0.932102266666666

00:20:14.458 --> 00:20:16.660 because of the way certain things

NOTE Confidence: 0.932102266666666

00:20:16.724 --> 00:20:18.924 happen to you and the way your brain

NOTE Confidence: 0.932102266666666

00:20:18.924 --> 00:20:20.627 responds to them at that point.

NOTE Confidence: 0.932102266666666

00:20:20.630 --> 00:20:22.989 So then we're talking about a corrective,

NOTE Confidence: 0.932102266666666

00:20:22.990 --> 00:20:24.925 deliberate intervention, right,

NOTE Confidence: 0.932102266666666

00:20:24.925 --> 00:20:28.150 to help reshape the neurosystems.

NOTE Confidence: 0.932102266666666

00:20:28.150 --> 00:20:29.718 So for depressed patients,

NOTE Confidence: 0.932102266666666

00:20:29.718 --> 00:20:33.322 we have a lot of data quite

NOTE Confidence: 0.932102266666666

00:20:33.322 --> 00:20:37.078 independently independent of.

NOTE Confidence: 0.932102266666666

00:20:37.080 --> 00:20:39.887 Any medical condition that may be related

NOTE Confidence: 0.932102266666666

00:20:39.887 --> 00:20:42.520 to the depression that we can enhance.

NOTE Confidence: 0.932102266666666

00:20:42.520 --> 00:20:43.876 As you said,

NOTE Confidence: 0.932102266666666

00:20:43.876 --> 00:20:46.136 these neuro systems that support

NOTE Confidence: 0.932102266666666

00:20:46.136 --> 00:20:48.823 the executive control systems that

NOTE Confidence: 0.932102266666666

00:20:48.823 --> 00:20:51.848 regulate emotion now having a chronic

NOTE Confidence: 0.932102266666666

00:20:51.848 --> 00:20:55.220 medical disease happens to be one of

NOTE Confidence: 0.932102266666666

00:20:55.220 --> 00:20:57.800 the type of life experiences that

NOTE Confidence: 0.932102266666666

00:20:57.800 --> 00:20:59.720 your listeners know all too well.

NOTE Confidence: 0.932102266666666

00:20:59.720 --> 00:21:02.429 Many of them compromise your ability to

NOTE Confidence: 0.932102266666666

00:21:02.429 --> 00:21:05.779 relate to the environment that sustains us.

NOTE Confidence: 0.932102266666666

00:21:05.780 --> 00:21:07.376 We're so connected to the environments.

NOTE Confidence: 0.932102266666666

00:21:07.380 --> 00:21:09.420 I didn't have time to fully explain that.

NOTE Confidence: 0.932102266666666

00:21:09.420 --> 00:21:11.933 I developed more fully of all these

NOTE Confidence: 0.932102266666666

00:21:11.933 --> 00:21:14.099 dimensions and in a book I wrote.

NOTE Confidence: 0.932102266666666

00:21:14.100 --> 00:21:16.300 But I I don't have time now to go into

NOTE Confidence: 0.932102266666666

00:21:16.363 --> 00:21:18.491 all the ways that we need to stay

NOTE Confidence: 0.932102266666666

00:21:18.491 --> 00:21:20.244 connected to these environmental inputs

NOTE Confidence: 0.932102266666666

00:21:20.244 --> 00:21:22.944 that shaped us, to also sustain us.

NOTE Confidence: 0.932102266666666

00:21:22.944 --> 00:21:25.050 That's why the COVID isolations were

NOTE Confidence: 0.932102266666666

00:21:25.116 --> 00:21:27.500 so hard for so many people who wanted,

NOTE Confidence: 0.932102266666666

00:21:27.500 --> 00:21:28.036 you know,

NOTE Confidence: 0.932102266666666

00:21:28.036 --> 00:21:31.299 to go back to my pub or my haircut salon.

NOTE Confidence: 0.932102266666666

00:21:31.300 --> 00:21:32.593 That's my life.

NOTE Confidence: 0.932102266666666

00:21:32.593 --> 00:21:34.317 That's part of me.

NOTE Confidence: 0.932102266666666

00:21:34.320 --> 00:21:36.616 And so all that gets disrupted by

NOTE Confidence: 0.932102266666666

00:21:36.616 --> 00:21:38.926 a chronic illness and then there's

NOTE Confidence: 0.932102266666666

00:21:38.926 --> 00:21:42.020 more stress put on these key neuro

NOTE Confidence: 0.932102266666666

00:21:42.113 --> 00:21:44.765 systems and they can then become

NOTE Confidence: 0.932102266666666

00:21:44.765 --> 00:21:47.320 compromised in the way I said.

NOTE Confidence: 0.932102266666666

00:21:47.320 --> 00:21:50.064 And so this becomes another type of

NOTE Confidence: 0.932102266666666

00:21:50.064 --> 00:21:52.462 situation right there where we would

NOTE Confidence: 0.932102266666666

00:21:52.462 --> 00:21:54.754 say we want a special intervention.

NOTE Confidence: 0.932102266666666

00:21:54.760 --> 00:21:56.596 So in answer to your question,

NOTE Confidence: 0.932102266666666

00:21:56.600 --> 00:21:57.160 there are,

NOTE Confidence: 0.932102266666666

00:21:57.160 --> 00:21:59.120 there is our brains are continually shaped.

NOTE Confidence: 0.932102266666666

00:21:59.120 --> 00:22:01.604 We need to be connected to the right type.

NOTE Confidence: 0.932102266666666

00:22:01.610 --> 00:22:03.210 Of input from our environments.

NOTE Confidence: 0.932102266666666

00:22:03.210 --> 00:22:04.825 Hopefully that largely happens from

NOTE Confidence: 0.932102266666666

00:22:04.825 --> 00:22:07.680 the way we as a society have created

NOTE Confidence: 0.932102266666666

00:22:07.680 --> 00:22:10.032 those environments and we relate to

NOTE Confidence: 0.932102266666666

00:22:10.032 --> 00:22:12.650 other people and that goes along nicely.

NOTE Confidence: 0.932102266666666

00:22:12.650 --> 00:22:14.090 There are times of course when

NOTE Confidence: 0.932102266666666

00:22:14.090 --> 00:22:14.570 the environment,

NOTE Confidence: 0.932102266666666

00:22:14.570 --> 00:22:17.048 as we see in the troubled places

NOTE Confidence: 0.932102266666666

00:22:17.048 --> 00:22:19.000 around the world where violence

NOTE Confidence: 0.932102266666666

00:22:19.000 --> 00:22:20.098 is totally disrupted,

NOTE Confidence: 0.932102266666666

00:22:20.098 --> 00:22:22.506 the community and the lives and the

NOTE Confidence: 0.932102266666666

00:22:22.506 --> 00:22:24.455 type of stimulation that's coming

NOTE Confidence: 0.932102266666666

00:22:24.455 --> 00:22:26.765 into those people's brains and minds,

NOTE Confidence: 0.932102266666666

00:22:26.770 --> 00:22:28.254 that's really distorting them

NOTE Confidence: 0.932102266666666

00:22:28.254 --> 00:22:30.480 in ways that are have lifelong.

NOTE Confidence: 0.932102266666666

00:22:30.480 --> 00:22:31.011 Consequences.

NOTE Confidence: 0.932102266666666

00:22:31.011 --> 00:22:34.535 So the time when you ask, should

NOTE Confidence: 0.932102266666666

00:22:34.535 --> 00:22:36.880 everybody be doing this all their lives?

NOTE Confidence: 0.932102266666666

00:22:36.880 --> 00:22:38.476 Well, yes, we are.

NOTE Confidence: 0.932102266666666

00:22:38.476 --> 00:22:40.471 We're doing it through established

NOTE Confidence: 0.932102266666666

00:22:40.471 --> 00:22:42.798 social structures of reading books,

NOTE Confidence: 0.932102266666666

00:22:42.800 --> 00:22:44.198 listening to music,

NOTE Confidence: 0.932102266666666

00:22:44.198 --> 00:22:45.596 going to school,

NOTE Confidence: 0.932102266666666

00:22:45.600 --> 00:22:47.076 interacting with other people.

NOTE Confidence: 0.932102266666666

00:22:47.076 --> 00:22:49.679 But there are special times when we

NOTE Confidence: 0.932102266666666

00:22:49.679 --> 00:22:51.635 want a special type of intervention.

NOTE Confidence: 0.90588216

00:22:52.320 --> 00:22:56.730 So let me kind of nail that down a little

NOTE Confidence: 0.90588216

00:22:56.730 --> 00:22:59.340 bit, you know, when we think about.

NOTE Confidence: 0.90588216

00:22:59.340 --> 00:23:01.872 Cancer patients, not only have they

NOTE Confidence: 0.90588216

00:23:01.872 --> 00:23:04.452 now been given this devastating

NOTE Confidence: 0.90588216

00:23:04.452 --> 00:23:08.540 diagnosis which routinely never puts

NOTE Confidence: 0.90588216

00:23:08.540 --> 00:23:10.856 an appointment invite on your calendar.

NOTE Confidence: 0.90588216

00:23:10.860 --> 00:23:13.849 So it it is often unexpected and

NOTE Confidence: 0.90588216

00:23:13.849 --> 00:23:17.890 you are now thrust into this life

NOTE Confidence: 0.90588216

00:23:17.890 --> 00:23:20.858 changing experience dealing with not

NOTE Confidence: 0.90588216

00:23:20.858 --> 00:23:24.134 only the physical ailment but also.

NOTE Confidence: 0.90588216

00:23:24.140 --> 00:23:25.904 You know, how is this going to

NOTE Confidence: 0.90588216

00:23:25.904 --> 00:23:27.620 affect your family, your children,

NOTE Confidence: 0.90588216

00:23:27.620 --> 00:23:30.020 your job, the financial toxicity,

NOTE Confidence: 0.90588216

00:23:30.020 --> 00:23:32.060 losing your hair, your body image,

NOTE Confidence: 0.90588216

00:23:32.060 --> 00:23:34.820 and on and on and on and on.

NOTE Confidence: 0.90588216

00:23:34.820 --> 00:23:38.012 You have a myriad of doctor's

NOTE Confidence: 0.90588216

00:23:38.012 --> 00:23:40.140 appointments and diagnostic tests.

NOTE Confidence: 0.90588216

00:23:40.140 --> 00:23:42.380 So a couple of questions.

NOTE Confidence: 0.90588216

00:23:42.380 --> 00:23:45.220 While the digital digital neurotherapy

NOTE Confidence: 0.90588216

00:23:45.220 --> 00:23:48.826 sounds like it would be advantageous,

NOTE Confidence: 0.90588216

00:23:48.826 --> 00:23:52.656 particularly for your emotional health.

NOTE Confidence: 0.90588216

00:23:52.660 --> 00:23:53.672 Two questions.

NOTE Confidence: 0.90588216

00:23:53.672 --> 00:23:57.720 One, how does that fit into this incredible

NOTE Confidence: 0.90588216

00:23:57.816 --> 00:24:00.696 whirlwind that you're already in?

NOTE Confidence: 0.90588216

00:24:00.700 --> 00:24:03.480 Would that increase anxiety and

NOTE Confidence: 0.90588216

00:24:03.480 --> 00:24:06.779 and depression by being yet another

NOTE Confidence: 0.90588216

00:24:06.779 --> 00:24:08.899 thing I need to do?

NOTE Confidence: 0.90588216

00:24:08.900 --> 00:24:10.320 And #2,

NOTE Confidence: 0.90588216

00:24:10.320 --> 00:24:14.580 in terms of rewiring or reshaping

NOTE Confidence: 0.90588216

00:24:14.580 --> 00:24:17.155 or strengthening the the brain

NOTE Confidence: 0.90588216

00:24:17.155 --> 00:24:19.215 and the cognitive processes,

NOTE Confidence: 0.90588216

00:24:19.220 --> 00:24:21.040 does that take time?

NOTE Confidence: 0.90588216

00:24:21.040 --> 00:24:23.315 Because certainly with cancer it's

NOTE Confidence: 0.90588216

00:24:23.315 --> 00:24:25.416 gonna move at its own pace.

NOTE Confidence: 0.90588216

00:24:25.420 --> 00:24:28.939 And are we playing catch up at that point?

NOTE Confidence: 0.95434236

00:24:30.100 --> 00:24:34.620 These are again, great questions.

NOTE Confidence: 0.95434236

00:24:34.620 --> 00:24:37.953 I know there's a big burden of the

NOTE Confidence: 0.95434236

00:24:37.953 --> 00:24:39.579 illness and also of the treatments.

NOTE Confidence: 0.95434236

00:24:39.580 --> 00:24:41.464 The nice thing about the digital

NOTE Confidence: 0.95434236

00:24:41.464 --> 00:24:43.011 neuro therapy is that you

NOTE Confidence: 0.95434236

00:24:43.011 --> 00:24:44.635 do it when you want at home.

NOTE Confidence: 0.95434236

00:24:44.640 --> 00:24:45.760 And so for example,

NOTE Confidence: 0.95434236

00:24:45.760 --> 00:24:48.667 if you logged on to the Ch Sciences website,

NOTE Confidence: 0.95434236

00:24:48.667 --> 00:24:51.121 which is a Yale startup company

NOTE Confidence: 0.95434236

00:24:51.121 --> 00:24:53.676 that's tried to is bringing the dirt,

NOTE Confidence: 0.95434236

00:24:53.680 --> 00:24:55.440 making the digital neurotherapy

NOTE Confidence: 0.95434236

00:24:55.440 --> 00:24:57.200 available for the world,

NOTE Confidence: 0.95434236

00:24:57.200 --> 00:24:59.860 you just create an account and you

NOTE Confidence: 0.95434236

00:24:59.860 --> 00:25:02.480 play the games whenever you want.

NOTE Confidence: 0.95434236

00:25:02.480 --> 00:25:03.425 Now you're right,

NOTE Confidence: 0.95434236

00:25:03.425 --> 00:25:05.315 it does take effort in time.

NOTE Confidence: 0.95434236

00:25:05.320 --> 00:25:07.120 The amount of time we're

NOTE Confidence: 0.95434236

00:25:07.120 --> 00:25:08.920 talking about would be about.

NOTE Confidence: 0.93857629

00:25:12.170 --> 00:25:14.408 100 minutes or so a week,

NOTE Confidence: 0.93857629

00:25:14.410 --> 00:25:17.868 less than two hours a week and it can

NOTE Confidence: 0.93857629

00:25:17.868 --> 00:25:21.310 be done anytime and it's painless.

NOTE Confidence: 0.93857629

00:25:21.310 --> 00:25:25.900 It's actually enjoyable and you can

NOTE Confidence: 0.93857629

00:25:25.900 --> 00:25:29.850 feel your systems getting stronger the.

NOTE Confidence: 0.9301902

00:25:33.920 --> 00:25:36.120 So, yeah, so, so you can access it,

NOTE Confidence: 0.9301902

00:25:36.120 --> 00:25:38.115 you you do it when you want,

NOTE Confidence: 0.9301902

00:25:38.120 --> 00:25:40.840 but you do like you said, it does take time.

NOTE Confidence: 0.9301902

00:25:40.840 --> 00:25:42.552 Now I I said it takes.

NOTE Confidence: 0.9301902

00:25:42.552 --> 00:25:45.202 So like let's say you did a 20 minute

NOTE Confidence: 0.9301902

00:25:45.202 --> 00:25:47.158 training session five days a week,

NOTE Confidence: 0.9301902

00:25:47.160 --> 00:25:50.360 30 minute training session four times a week.

NOTE Confidence: 0.9301902

00:25:50.360 --> 00:25:52.394 Think of it like going to the gym though.

NOTE Confidence: 0.9301902

00:25:52.400 --> 00:25:53.610 You're absolutely right in these

NOTE Confidence: 0.9301902

00:25:53.610 --> 00:25:55.119 it won't work unless you do it.

NOTE Confidence: 0.9301902

00:25:55.120 --> 00:25:56.120 And it does take time.

NOTE Confidence: 0.9301902

00:25:56.120 --> 00:25:57.928 Now it takes time in terms of what

NOTE Confidence: 0.9301902

00:25:57.928 --> 00:25:59.400 we've talked about, the intensity,

NOTE Confidence: 0.9301902

00:25:59.400 --> 00:26:00.760 how frequently per week,

NOTE Confidence: 0.9301902

00:26:00.760 --> 00:26:02.785 but how long do you have to do it?

NOTE Confidence: 0.9301902

00:26:02.790 --> 00:26:04.150 Well, in the published studies,

NOTE Confidence: 0.9301902

00:26:04.150 --> 00:26:07.630 it was 4 weeks and there was dramatic

NOTE Confidence: 0.9301902

00:26:07.630 --> 00:26:09.765 benefit that was done with actually

NOTE Confidence: 0.9301902

00:26:09.765 --> 00:26:11.994 people were doing it five days a

NOTE Confidence: 0.9301902

00:26:11.994 --> 00:26:15.070 week and doing it for an hour a day.

NOTE Confidence: 0.9301902

00:26:15.070 --> 00:26:18.310 But we think of that if you do it

NOTE Confidence: 0.9301902

00:26:18.310 --> 00:26:20.972 four times a week for 30 minutes,

NOTE Confidence: 0.9301902

00:26:20.972 --> 00:26:24.230 five times a week for 20 minutes at home,

NOTE Confidence: 0.9301902

00:26:24.230 --> 00:26:27.670 within 8 to 12 weeks,

NOTE Confidence: 0.9301902

00:26:27.670 --> 00:26:29.238 people start feeling better.

NOTE Confidence: 0.9301902

00:26:29.238 --> 00:26:31.198 And thinking better and then

NOTE Confidence: 0.9301902

00:26:31.198 --> 00:26:33.476 building in more able to engage in

NOTE Confidence: 0.9301902

00:26:33.476 --> 00:26:35.110 other activities in their lives,

NOTE Confidence: 0.9301902

00:26:35.110 --> 00:26:36.182 which will amplify it.

NOTE Confidence: 0.9301902

00:26:36.182 --> 00:26:38.274 As you said, amplify the benefits.

NOTE Confidence: 0.9301902

00:26:38.274 --> 00:26:39.986 Attend their doctor's appointments,

NOTE Confidence: 0.9301902

00:26:39.990 --> 00:26:41.406 remember their medication,

NOTE Confidence: 0.9301902

00:26:41.406 --> 00:26:42.350 do exercise,

NOTE Confidence: 0.9301902

00:26:42.350 --> 00:26:45.718 do more time reading spent and

NOTE Confidence: 0.9301902

00:26:45.718 --> 00:26:48.150 interacting with other people.

NOTE Confidence: 0.9301902

00:26:48.150 --> 00:26:50.789 Smiling more itself makes you feel better,

NOTE Confidence: 0.9301902

00:26:50.790 --> 00:26:53.106 so it will build on itself.

NOTE Confidence: 0.9301902

00:26:53.110 --> 00:26:54.923 Now the amount of time you have

NOTE Confidence: 0.9301902

00:26:54.923 --> 00:26:57.031 it is that you know the sooner

NOTE Confidence: 0.9301902

00:26:57.031 --> 00:26:58.295 you start the better.

NOTE Confidence: 0.9301902

00:26:58.300 --> 00:27:00.742 Because we do know that the

NOTE Confidence: 0.9301902

00:27:00.742 --> 00:27:02.370 presence of depression compromises

NOTE Confidence: 0.9301902

00:27:02.441 --> 00:27:04.851 survival duration in patients with

NOTE Confidence: 0.9301902

00:27:04.851 --> 00:27:06.779 cancer that's been established.

NOTE Confidence: 0.9301902

00:27:06.780 --> 00:27:09.363 So I think that this would be

NOTE Confidence: 0.9301902

00:27:09.363 --> 00:27:11.508 something that would be valuable for

NOTE Confidence: 0.9301902

00:27:11.508 --> 00:27:13.932 people to start sooner rather than

NOTE Confidence: 0.9301902

00:27:13.932 --> 00:27:15.936 later and work it into the routine.

NOTE Confidence: 0.9301902

00:27:15.940 --> 00:27:17.340 And let me add further,

NOTE Confidence: 0.9301902

00:27:17.340 --> 00:27:19.740 you try it and you feel, you know,

NOTE Confidence: 0.9301902

00:27:19.740 --> 00:27:21.500 I'm just not feeling that well or I

NOTE Confidence: 0.9301902

00:27:21.549 --> 00:27:23.259 had some chemotherapy that's really

NOTE Confidence: 0.9301902

00:27:23.260 --> 00:27:25.380 making me just too exhausted to try it.

NOTE Confidence: 0.9301902

00:27:25.380 --> 00:27:26.535 You can do it lying in bed,

NOTE Confidence: 0.9301902

00:27:26.540 --> 00:27:27.944 by the way.

NOTE Confidence: 0.9301902

00:27:27.944 --> 00:27:30.000 On your tablet, touchscreen tablet.

NOTE Confidence: 0.9301902

00:27:30.000 --> 00:27:32.830 But I'm just too exhausted to even try it.

NOTE Confidence: 0.9301902

00:27:32.830 --> 00:27:35.190 I'm just going to do 10 minutes today,

NOTE Confidence: 0.9301902

00:27:35.190 --> 00:27:36.910 and this week I may only get in,

NOTE Confidence: 0.9301902

00:27:36.910 --> 00:27:38.510 you know, 40 minutes total.

NOTE Confidence: 0.9301902

00:27:38.510 --> 00:27:39.254 That's all right.

NOTE Confidence: 0.9301902

00:27:39.254 --> 00:27:41.590 But then you can build it up gradually.

NOTE Confidence: 0.937378342857143

00:27:43.070 --> 00:27:45.947 And so then the next question is

NOTE Confidence: 0.937378342857143

00:27:45.950 --> 00:27:47.786 how long do the effects last?

NOTE Confidence: 0.937378342857143

00:27:47.790 --> 00:27:49.062 So for example,

NOTE Confidence: 0.937378342857143

00:27:49.062 --> 00:27:52.030 if you did this for four weeks,

NOTE Confidence: 0.937378342857143

00:27:52.030 --> 00:27:56.184 as the studies as suggested is there.

NOTE Confidence: 0.937378342857143

00:27:56.184 --> 00:27:59.069 A tail, in other words,

NOTE Confidence: 0.937378342857143

00:27:59.070 --> 00:28:01.296 does this have a glow effect where

NOTE Confidence: 0.937378342857143

00:28:01.296 --> 00:28:03.088 you know you've strengthened the

NOTE Confidence: 0.937378342857143

00:28:03.088 --> 00:28:05.023 cognitive portions of your brain

NOTE Confidence: 0.937378342857143

00:28:05.023 --> 00:28:07.274 and you can continue to reap

NOTE Confidence: 0.937378342857143

00:28:07.274 --> 00:28:09.308 that benefit for years to come?

NOTE Confidence: 0.937378342857143

00:28:09.310 --> 00:28:10.642 Or is this something that you

NOTE Confidence: 0.937378342857143

00:28:10.642 --> 00:28:12.468 need to do on an ongoing basis?

NOTE Confidence: 0.929868920740741

00:28:12.910 --> 00:28:14.554 Well, I think it's advantageous to

NOTE Confidence: 0.929868920740741

00:28:14.554 --> 00:28:16.962 do it on a longer than four weeks

NOTE Confidence: 0.929868920740741

00:28:16.962 --> 00:28:19.503 and longer than I'd said you can see

NOTE Confidence: 0.929868920740741

00:28:19.503 --> 00:28:21.926 benefit for in the studies, 4 weeks,

NOTE Confidence: 0.929868920740741

00:28:21.926 --> 00:28:24.614 8 or 10 weeks we're recommending.

NOTE Confidence: 0.929868920740741

00:28:24.620 --> 00:28:27.980 At a somewhat lower intensity use at home,

NOTE Confidence: 0.929868920740741

00:28:27.980 --> 00:28:29.220 but I think there's more

NOTE Confidence: 0.929868920740741

00:28:29.220 --> 00:28:30.660 benefit the longer you do it.

NOTE Confidence: 0.946805892105263

00:28:31.300 --> 00:28:33.532 Doctor Bruce Wexler is a professor

NOTE Confidence: 0.946805892105263

00:28:33.532 --> 00:28:35.808 emeritus and senior research scientist in

NOTE Confidence: 0.946805892105263

00:28:35.808 --> 00:28:38.335 psychiatry at the Yale School of Medicine.

NOTE Confidence: 0.946805892105263

00:28:38.340 --> 00:28:40.578 If you have questions, the address

NOTE Confidence: 0.946805892105263

00:28:40.578 --> 00:28:43.020 is Cancer Answers at Yale dot Edu.

NOTE Confidence: 0.946805892105263

00:28:43.020 --> 00:28:45.444 And past editions of the program

NOTE Confidence: 0.946805892105263

00:28:45.444 --> 00:28:47.840 are available in audio and written

NOTE Confidence: 0.946805892105263

00:28:47.840 --> 00:28:48.846 form at yalecancercenter.org.

NOTE Confidence: 0.946805892105263

00:28:48.846 --> 00:28:51.294 We hope you'll join us next week to

NOTE Confidence: 0.946805892105263

00:28:51.294 --> 00:28:53.168 learn more about the fight against

NOTE Confidence: 0.946805892105263

00:28:53.168 --> 00:28:55.020 cancer here on Connecticut Public Radio.

NOTE Confidence: 0.946805892105263

00:28:55.020 --> 00:28:57.576 Funding for Yale Cancer Answers is

NOTE Confidence: 0.946805892105263

00:28:57.576 --> 00:29:00.000 provided by Smilow Cancer Hospital.