

Discovering Psychology: Updated Edition

023 Health, Mind, and Behavior

- 1 01:00:17:20 >> ZIMBARDO: What can traditional Native American culture teach us about good health?
- 2 01:00:22:04 (*Native Americans chanting*) How can biofeedback lower our pulse?
- 3 01:00:33:04 Why can stress make us sick?
- 4 01:00:36:19 Can psychologists help control the AIDS epidemic?
- 5 01:00:41:19 "Health, Mind, and Behavior," this time on *Discovering Psychology* .
- 6 01:01:18:19 >> ZIMBARDO: If I asked you if psychology had anything to do with cancer or heart disease or the common cold, what would you say?
- 7 01:01:26:26 When I was a student, I would have said no.
- 8 01:01:29:17 I had grown up in the old school, which held that the body was influenced solely by physical and biological events.
- 9 01:01:36:06 The psyche might be important for emotions, for beliefs, but it had little to do with the reality of the body.
- 10 01:01:43:26 Today research is forcing a profound rethinking of the relationship between the activities of the mind and those of the body.
- 11 01:01:51:26 There is now a substantial amount of evidence that the human mind influences susceptibility and resistance to disease.
- 12 01:01:59:27 As a result, the more traditional biomedical model is being joined by a biopsychosocial model.
- 13 01:02:06:26 This new approach involves treating not just the body but the whole person in his or her social context.
- 14 01:02:14:19 Each individual is seen as a human system in which mental and physical processes constantly interact and affect each other.

- 15 01:02:26:15 This holistic approach has been used by other cultures for centuries.
- 16 01:02:31:16 Native Americans, for example, have traditionally placed great importance on the harmony of mind and body.
- 17 01:02:38:03 In the Navajo concept of *hozho*, beauty, peace of mind, goodness, and health are all inextricably intertwined.
- 18 01:02:46:29 The natural world, beauty in the arts, and even family relationships strive to achieve harmony.
- 19 01:02:56:16 In the Navajo world, illness is considered the result of disharmony.
- 20 01:03:02:10 While tribal ceremonies seek to restore health and banish illness, family members work together with the sick person to achieve *hozho*.
- 21 01:03:11:06 He or she is never given over to stranger experts in some unfamiliar hospital for long periods of time, as happens in our society.
- 22 01:03:19:22 Nor is there any implication that the individual is responsible for the illness.
- 23 01:03:25:13 What the Navajos have always known, health psychologists are just beginning to verify.
- 24 01:03:31:00 Today health psychology is one of the most innovative and exciting fields within psychology.
- 25 01:03:36:22 Researchers are studying the reasons why people become ill, the ways in which people respond when they are ill, and the ways in which people maintain their health.
- 26 01:03:48:29 It's now believed that there are at least four ways in which psychology and medical problems are related.
- 27 01:03:55:07 First, some organic malfunctioning or tissue damage may be psychogenic; that is, the illness is directly caused by an individual's psychological state of anxiety, tension, or depression.
- 28 01:04:08:11 Peptic ulcers can be caused by excessive anxiety.
- 29 01:04:12:00 So can hypertension, allergies, and skin disorders, to name just a few.

- 30 01:04:17:21 >> And sometimes I have a headache up above here and in my shoulders.
- 31 01:04:22:10 >> ZIMBARDO: In the second category of mind-body ailments are all the complaints which patients bring to physicians that turn out to have no apparent organic basis: headaches, exhaustion, and weakness.
- 32 01:04:35:13 Instead, these ailments are physical symptoms of underlying sources of tension and personal problems.
- 33 01:04:41:26 >> How are you?
- 34 01:04:43:19 >> I'm much better.
- 35 01:04:45:15 >> In what way?
- 36 01:04:47:21 >> Well, I feel that I can eat again...
- 37 01:04:52:19 >> ZIMBARDO: Once the problems are resolved, the symptoms will go away.
- 38 01:04:57:23 Third, psychological factors can also work indirectly by weakening, or strengthening, our resistance to disease.
- 39 01:05:06:08 They can affect the impact of disease agents on the body by suppressing or supporting the body's immune system.
- 40 01:05:18:04 And lastly, there are the psychological factors that help cause unhealthful behavior, which in turn causes illness.
- 41 01:05:26:14 Half of all deaths in the U.S.
- 42 01:05:28:11 are now attributed to unhealthful behavior patterns, such as smoking.
- 43 01:05:36:07 By studying these mind-body relationships, health psychologists like Judith Rodin of Yale University hope to find ways to improve our health and well-being.
- 44 01:05:47:10 In pioneering studies with elderly people, Rodin and her colleague, Ellen Langer, discovered how relatively subtle psychological factors can bring about significant physiological changes.
- 45 01:05:59:00 >> For many years, people believed that there was a kind of inevitable, genetically determined march towards decline that came along with aging.

- 46 01:06:08:18 And our research has now shown, in a variety of ways and in a variety of studies, that people actually may experience some kind of decline with aging but that it's neither inevitable nor is it the same for every person.
- 47 01:06:26:04 We did a series of studies in nursing homes where we actually gave people an increased sense of control: gave them a greater number of choices over events in their lives, things to take care of, a sense of entitlement, and greater sense of power over their environment.
- 48 01:06:40:25 And we measured physical health outcomes, a variety of physical health conditions, and ultimately we also measured death outcome.
- 49 01:06:48:00 And we found that the people with the greater sense of control, a feeling of responsibility, actually did better both in terms of physical health and also there were indeed fewer deaths.
- 50 01:06:59:12 Once we can demonstrate that psychological factors affect health, the burning question of course is the mechanism by which that relationship occurs.
- 51 01:07:08:21 >> ZIMBARDO: To find this mechanism, Rodin and other health psychologists are focusing on the body's immune system, the complex network of specialized organs and cells that defend the body against attacks by antigens: foreign organisms like viruses and bacteria.
- 52 01:07:26:07 When the immune system functions properly, it fights off infection.
- 53 01:07:30:23 But when it malfunctions, an incredible variety of diseases can flourish, from allergies to terminal cancer.
- 54 01:07:38:22 To fend off antigens like these that cause disease, the body has devised a series of defenses.
- 55 01:07:45:24 First there are the body's external defenses: the skin and the mucous membranes coated with antibodies.
- 56 01:07:53:13 If an antigen makes it past them, it still has to contend with white blood cells, T-cells, and B-cells.
- 57 01:08:02:23 How can psychological factors affect such a complex biological system?

- 58 01:08:07:10 Through the brain.
- 59 01:08:08:25 >> There's been an explosion in research in basic immunology showing the inner connections between the brain and the immune system.
- 60 01:08:17:26 And once it's clear that the brain speaks to the immune system, then the potential for psychological variables affecting the immune function is absolutely enormous.
- 61 01:08:26:17 There are many ways that the brain can influence the immune system; two in particular have been well demonstrated.
- 62 01:08:33:05 One is that there's actually hard-wiring, meaning that there are nerve connections between various regions in the brain and lymphocytes and other organs in the immune system, so that it's quite clear that there could be cross-talk through neural transmission.
- 63 01:08:53:02 And the second way is through what we call wet kinds of connections: the endocrine system.
- 64 01:08:59:01 And there's now clear evidence that there are receptors for various hormones actually on the lymphocytes in the immune system, so there they are sitting there able to be responsive to changes in your endocrine responses.
- 65 01:09:12:13 >> ZIMBARDO: One area in which the interaction between psychological factors and the immune system may have important impact is human fertility.
- 66 01:09:24:24 Rodin is exploring this question with infertile couples.
- 67 01:09:29:04 >> We're interested in couples who have infertility of unknown origin, and many of them come to in vitro fertilization, which is an opportunity to actually have a fertilization outside of the uterus and then have the fertilized egg implanted in the uterus.
- 68 01:09:48:08 And while it's biologically a very precise procedure, the success rate is only about 20%.
- 69 01:09:55:10 And we're interested in the question of whether the stress of the procedure itself may cause a set of immune responses that make the woman less likely to accept the fertilized egg.
- 70 01:10:09:11 So it's a very important model system for really looking at the

effects of psychological variables -- in this case, stress -- on a very major biological outcome: implantation.

- 71 01:10:21:02 We're not saying that immune factors are the cause of the infertility.
- 72 01:10:24:29 We're saying that immune factors may be the cause of the rejection of the fertilized egg in this unique experimental procedure: in vitro fertilization.
- 73 01:10:35:06 >> ZIMBARDO: There are other dramatic ways in which the mind can influence the body.
- 74 01:10:39:11 You don't have to take the word of a psychologist to believe it.
- 75 01:10:42:18 You can see it with your own eyes.
- 76 01:10:46:12 Your skin temperature, blood pressure, muscle tension, or even blushing can be increased or decreased by mere thinking.
- 77 01:10:52:28 It sounds extraordinary, but it's done all the time with a process called biofeedback.
- 78 01:10:58:25 This instrument can display instantly any increase or decrease in my heart rate.
- 79 01:11:04:00 My job is going to be to lower my heart rate by watching the fluctuations on the screen or listening to the pulses and concentrating on the desired result.
- 80 01:11:12:20 In other words, focusing my mind on my body.
- 81 01:11:16:24 I'll start by attaching this sensor, which records not only my pulse but my heart rate.
- 82 01:11:22:06 In looking at the screen, I'll first establish my base level, which is about 73, 75 beats a minute.
- 83 01:11:33:23 And now I'll try to lower it by relaxing, focusing my mind on my body.
- 84 01:11:41:20 (*beats decrease slowly*) I've lowered my heart beat by over ten beats per minute by using the psychology of biofeedback.
- 85 01:12:05:26 Psychologist Neal Miller of Yale is a pioneer in biofeedback

research.

- 86 01:12:11:25 >> If a novice were learning to shoot baskets and both he and his coach were blindfolded, they wouldn't know where the ball went, whether they were succeeding or not.
- 87 01:12:27:03 And the novice wouldn't learn because he didn't have any knowledge of the results to serve as a reward for success and a punishment for failure.
- 88 01:12:40:01 Most responses of the internal organs are not perceived very well, so the person is in the position of the blindfolded basketball player.
- 89 01:12:53:16 What biofeedback does by using measuring instruments is to remove the blindfold by supplying information on what's happening.
- 90 01:13:08:27 >> ZIMBARDO: Miller discovered biofeedback while doing basic research on learning with animals.
- 91 01:13:14:12 He showed that they could be trained to change the functioning of some of their internal organs.
- 92 01:13:19:28 >> The basic research, which is guided by how the facts of nature fit together to understand how nature works, is important for leading to progress, because if one doesn't know how something works, it's much more difficult to fix it.
- 93 01:13:51:28 >> ZIMBARDO: The area of health psychology that has the greatest practical applications is also the area in which the most research has been done.
- 94 01:14:00:04 Its primary object of study affects us all and has even been called the classic disease of civilization.
- 95 01:14:06:10 You and I know it as stress.
- 96 01:14:08:18 (*car horn honks*) Stress is defined scientifically as the pattern of responses an organism makes to events that disturb its equilibrium, attack its ability to cope, or exceed its ability to cope.
- 97 01:14:27:02 (*sirens wail*) These disturbing events are known as stressors.
- 98 01:14:36:05 They may be part of the physical environment: noise, overcrowding, disease, natural disasters.

- 99 01:14:43:29 Or they can come in other forms, from the social environment: unemployment, crime, family troubles, the loss of a loved one.
- 100 01:14:54:25 Then there are life's little hassles, like being late.
- 101 01:14:57:26 >> Sorry I'm late.
- 102 01:14:58:22 >> Oh, well...
- 103 01:15:01:10 >> ZIMBARDO: This is a rating scale of stressful events and their impact, devised by several psychologists.
- 104 01:15:08:02 It begins with relatively minor events and gets progressively worse.
- 105 01:15:13:21 Notice that stress isn't just a matter of external events.
- 106 01:15:17:09 We can also be a major source of stress to ourselves, by being overly competitive and aggressive, easily angered, prone to anxiety, or overly self critical by being rigid and demanding.
- 107 01:15:31:02 Curiously, one of the most significant sources of stress is not the same old grind, but change.
- 108 01:15:36:18 Virtually any event that represents a change from the ordinary can be a stressor.
- 109 01:15:40:27 That includes primarily negative events such as illness and failure, but also positive ones such as marriage or sudden success.
- 110 01:15:49:12 The reason is that change, any change, demands an adjustment to new circumstances, an attempt to restore equilibrium.
- 111 01:15:56:28 The greater the change, even a positive one, the greater the adjustment one has to make.
- 112 01:16:01:27 That's why the stress of a sudden good fortune can sometimes be as great as that of a small tragedy.
- 113 01:16:10:14 As your stress accumulates, the chances of your getting seriously ill in the next few years increases significantly.
- 114 01:16:18:04 The correlation of life-change events and subsequent illness has been documented in a number of studies.

- 115 01:16:24:12 >> We have learned that many diseases have no single specific causes, but are due largely to nonspecific stress.
- 116 01:16:33:26 >> ZIMBARDO: The earliest research on stress was conducted by a Canadian physician, Hans Seyle, who studied stressors that threaten the physical functioning of animals.
- 117 01:16:43:21 Seyle discovered a general reaction to stress that was not tied to the particular nature of the stressor.
- 118 01:16:49:24 He called it the general adaptation syndrome and characterized it as having three stages.
- 119 01:16:56:01 This film illustrates his theory.
- 120 01:17:01:04 First, an alarm reaction stimulates the pituitary and adrenal glands to release hormones that mobilize the body's defenses.
- 121 01:17:13:04 If the stressor continues, then the second stage is reached: the stage of resistance, in which hormonal secretions, here labeled A and P, are activated to counteract the effect of the stressor.
- 122 01:17:26:05 But the body's reaction to other stressors is weakened.
- 123 01:17:30:16 With continued exposure to a chronic stressful situation, all resistance breaks down, culminating in the third stage: the stage of exhaustion.
- 124 01:17:40:28 >> Prolonged exposure to stress can bring disease, exhaustion, or even premature death.
- 125 01:17:50:02 >> ZIMBARDO: Hans Seyle's work helped explain the origin of many disorders that had baffled physicians.
- 126 01:17:55:13 But Seyle overlooked the psychological meaning that a stressor has to the individual.
- 127 01:18:00:10 And that meaning is critical.
- 128 01:18:02:16 The way in which an event is subjectively perceived and interpreted is often more important than the objective nature of the event itself.
- 129 01:18:10:11 One person's stress is another's exciting challenge.

- 130 01:18:14:17 (*bell ringing*) What's upsetting and stressful to you may be challenging and stimulating to someone else.
- 131 01:18:21:17 Each of us evaluates the nature of an experience differently, as threatening or exciting or somewhere in-between.
- 132 01:18:30:11 We evaluate not only how serious a stressful event is -- how big and how pressing it is -- but also whether we have the resources to cope with it and what strategies we should use to deal with it.
- 133 01:18:41:25 This kind of personal evaluation of stress has been termed "cognitive appraisal" by psychologist Richard Lazarus.
- 134 01:18:53:11 If stress is inevitable -- and I think it is -- then we have to learn effective coping strategies to deal with it.
- 135 01:18:59:21 And that's where health psychologists try to help.
- 136 01:19:02:22 They are especially concerned about the practicalities of health.
- 137 01:19:06:13 They work at improving health care, they consult on government policies, and they devise strategies to prevent illness and promote health.
- 138 01:19:15:02 But ultimately it's also up to each of us to stay healthy and to develop lifestyles that encourage wellness.
- 139 01:19:22:00 And whether you do or you don't is going to be in large part a question of psychology -- your psychology.
- 140 01:19:30:09 In 1900, the primary cause of death was infectious disease: smallpox, tuberculosis, influenza.
- 141 01:19:39:08 But a revolution in public health has effectively reduced the terror of these illnesses.
- 142 01:19:43:20 Today the major cause of death is lifestyle: heart disease, cancer, cirrhosis of the liver, accidents, suicide.
- 143 01:19:53:15 They kill us because we smoke too much, drink too much, drive too fast, work too hard.
- 144 01:20:01:26 Our psyches are making our bodies more vulnerable than they have to be, and the mind-body connection is becoming increasingly deadly.

- 145 01:20:13:21 If there is any illness that combines the psychological and medical issues in an explosive way, it is AIDS: Acquired Immune Deficiency Syndrome.
- 146 01:20:22:19 There is the emotional impact of AIDS on those who have it and their families and friends.
- 147 01:20:27:13 There's the fear of AIDS among high-risk groups: homosexuals, intravenous drug users, and hemophiliacs.
- 148 01:20:34:28 There's fear among the general public.
- 149 01:20:37:05 And there is even a psychological element in the transmission and prevention of the disease.
- 150 01:20:42:06 Thomas Coates at the University of California Medical School is part of a health psychology team that is studying AIDS from a psychosocial perspective.
- 151 01:20:51:18 Coates is calling for a broader look at AIDS, combining medical and psychological research to improve our understanding of the disease.
- 152 01:20:59:13 >> The AIDS epidemic is primarily a behavioral problem.
- 153 01:21:03:04 Although it's caused by a virus, it's spread by behaviors.
- 154 01:21:07:00 Those behaviors were identified fairly early in the epidemic.
- 155 01:21:10:04 So then in order to stop the epidemic, we need a fuller understanding of the kinds of activities people engage in, where they engage in those activities, the motivations for those activities, and ways of changing those activities to prevent the spread of the infection further.
- 156 01:21:26:13 >> ZIMBARDO: Coates and his colleagues conduct interview studies with at-risk groups, including single heterosexuals, gays, bisexuals, and intravenous drug users.
- 157 01:21:35:20 >> First of all, what kinds of places do you usually go to when you want to meet somebody either that you want to have a relationship with or have sex with?
- 158 01:21:44:26 >> The two most common places I'd go to would be dance clubs and social events at my friends' houses that are usually set up for singles.
- 159 01:21:54:12 >> In controlling the spread of this epidemic, it's not enough

just to tell people what the risky behaviors are.

- 160 01:21:59:05 We need to understand a lot more.
- 161 01:22:01:05 We need to understand their motivations for engaging in those activities, their potential motivations for changing, and how innovation and change can spread throughout a given community.
- 162 01:22:11:15 When the AIDS epidemic started among gay and bisexual men, we knew that about 60% to 70% of the gay and bisexual men in San Francisco practiced anal intercourse.
- 163 01:22:21:10 Well, the epidemiologists had found very clearly that this is a very high-risk behavior.
- 164 01:22:26:01 The virus spreads very easily through this type of intercourse.
- 165 01:22:29:12 We found out some of the motivations for that; people found it very enjoyable.
- 166 01:22:32:13 And we found out some of the obstacles to condom usage, not the least of which was the fact that if people were using drugs and alcohol while having sex, they were much less likely to engage in protected activity.
- 167 01:22:43:10 Well, that gave us a very clear target for interventions.
- 168 01:22:46:18 It let us know that if we could intervene and have people use less drugs and alcohol while having sex, it might be possible to get them to practice safer sex.
- 169 01:22:55:19 What we want to do is not only inform people, give them the message, we want to motivate them, and we want to teach them the skills, and we want to change the norms of the community.
- 170 01:23:05:13 What this has demanded -- and this is where the psychologist gets involved -- is interventions at a variety of levels.
- 171 01:23:12:28 So, for example, when the media is used to give out motivational messages, it's important that those motivational messages be based on good, sound psychology.
- 172 01:23:22:21 To give you an example, there should be enough threat to the individual to arouse their emotions but not so much so

that they want to deny or avoid it.

- 173 01:23:31:24 AIDS is probably a unique disease, at least in modern times, in that there isn't a good medical cure.
- 174 01:23:40:23 And the psychologist needs to work and probably have a role almost as prominent as the physician in helping the individual take care of himself or herself as they cope with this disease.
- 175 01:23:54:00 And it can work in a lot of different ways.
- 176 01:23:56:01 And one is simply by trying to increase their quality of life.
- 177 01:23:59:12 A second is by not denying the disease but really helping individuals come to grips with taking care of themselves and collaborating with the appropriate medical systems, whether they be the traditional or alternative medical systems, in the taking care of one's self.
- 178 01:24:16:20 And then the third has to do with the potential link between one's outlook and the way one responds to infection.
- 179 01:24:23:01 We know from other research that depression leads people to get sicker and leads people to have more susceptibility to infectious diseases.
- 180 01:24:31:13 And it may be true in the case of AIDS.
- 181 01:24:33:26 And whether that's true or not -- and we don't know that at this point; we hopefully will at some point in the near future -- it at least makes sense to try to maintain one's positive outlook and to maintain good health habits as a way of trying to take care of one's self.
- 182 01:24:49:23 >> ZIMBARDO: Throughout this program, we've seen how health psychologists apply the knowledge and tools of psychology to practical problems of understanding and improving our health.
- 183 01:25:01:11 Next time we're going to explore two other areas of practical research which are right on the cutting edge of psychology.
- 184 01:25:08:19 We're going to look up, out, and beyond: to examine the psychology of life and travel in outer space.
- 185 01:25:15:27 And then we'll come back down to earth to look at the psychology of peace.

- 186 01:25:20:07 Can we prevent wars and promote peace by using psychology?
- 187 01:25:24:13 Researchers are trying to find out.
- 188 01:25:26:26 New frontiers in psychology, next time.
- 189 01:25:30:18 I'm Philip Zimbardo.
- 190 01:25:34:16 [Captioned by The Caption Center WGBH Educational Foundation]
- 191 01:26:09:24 >> *Funding for this program is provided by Annenberg/CPB to advance excellent teaching .*
- 192 01:26:21:04 >> *For information about this and other Annenberg/CPB programs, call 1-800-LEARNER and visit us at www.learner.org .*