

1
00:00:00,000 --> 00:00:05,040
will not exist it really precludes doing

2
00:00:02,189 --> 00:00:07,048
any kind of ambitious or reasonable work

3
00:00:05,040 --> 00:00:09,300
looking at mechanisms and the data is

4
00:00:07,049 --> 00:00:11,519
not clear does intercessory prayer

5
00:00:09,300 --> 00:00:13,670
actually influence positive health

6
00:00:11,519 --> 00:00:16,259
health outcomes we're just not certain

7
00:00:13,669 --> 00:00:18,809
what's assumed that it does influence

8
00:00:16,260 --> 00:00:21,570
positive health outcomes there is still

9
00:00:18,809 --> 00:00:24,689
no accepted biomedical explanation for

10
00:00:21,570 --> 00:00:27,210
IPS alleged healing effects there's very

11
00:00:24,689 --> 00:00:28,649
little data for example in say the bird

12
00:00:27,210 --> 00:00:30,868
study or the Harris study where there

13
00:00:28,649 --> 00:00:32,699
were positive findings we have the

14
00:00:30,868 --> 00:00:34,289
outcomes but we don't have any of the

15
00:00:32,700 --> 00:00:36,239
pathways we don't have any of the

16
00:00:34,289 --> 00:00:37,619
physiological data that may indicate

17
00:00:36,238 --> 00:00:40,378
that there are shifts within these

18
00:00:37,619 --> 00:00:42,000
people that would help justify why in

19
00:00:40,378 --> 00:00:45,539
fact they had a better course so we're

20
00:00:42,000 --> 00:00:48,600
lacking data ip's healing effects if

21
00:00:45,539 --> 00:00:51,899
they do exist appear to be non-local so

22
00:00:48,600 --> 00:00:54,420
are the mechanisms naturalistic is there

23
00:00:51,899 --> 00:00:56,429
some latent force or energy that's

24
00:00:54,420 --> 00:00:59,189
actually being tapped through IP that

25
00:00:56,429 --> 00:01:01,409
influences healing and perhaps there is

26
00:00:59,189 --> 00:01:03,238
something that exists and science just

27
00:01:01,409 --> 00:01:05,518
simply isn't able to measure it yet or

28
00:01:03,238 --> 00:01:09,149
to verify verify it in a way that would

29

00:01:05,519 --> 00:01:11,880
satisfy mainstream science perhaps the

30
00:01:09,150 --> 00:01:14,909
mechanisms are supernatural perhaps it

31
00:01:11,879 --> 00:01:19,408
is God who underlies the benefits of

32
00:01:14,909 --> 00:01:21,090
prayer but God can God be tested we

33
00:01:19,409 --> 00:01:24,240
would also have to consider that if

34
00:01:21,090 --> 00:01:27,570
prayer can indeed provide positive

35
00:01:24,239 --> 00:01:29,099
effects then are there nocebo effects or

36
00:01:27,569 --> 00:01:30,569
are there negative effects that could

37
00:01:29,099 --> 00:01:33,478
come from prayer this data that

38
00:01:30,569 --> 00:01:35,129
indicates approximately five percent of

39
00:01:33,478 --> 00:01:37,500
people at least admit that they pray for

40
00:01:35,129 --> 00:01:39,839
harm for someone else that something

41
00:01:37,500 --> 00:01:42,030
befall some negative consequence befalls

42
00:01:39,840 --> 00:01:44,280
someone else so if there's a positive

43
00:01:42,030 --> 00:01:47,189

and potentially negative consequence to

44

00:01:44,280 --> 00:01:49,739

prayer what does that mean in terms of

45

00:01:47,188 --> 00:01:51,298

our own ethics about subjecting patients

46

00:01:49,739 --> 00:01:54,239

to an intervention that may actually

47

00:01:51,299 --> 00:01:56,310

harm them and there is a range of

48

00:01:54,239 --> 00:02:00,149

methodological criticism directed at

49

00:01:56,310 --> 00:02:02,609

trials the standards of which seem to be

50

00:02:00,149 --> 00:02:04,349

at times somewhat higher than the

51

00:02:02,609 --> 00:02:05,640

criticism that's levy towards more

52

00:02:04,349 --> 00:02:08,399

traditional kinds of medical research

53

00:02:05,640 --> 00:02:10,560

but it's out there that studies

54

00:02:08,399 --> 00:02:11,099

essentially lack scientific rigor with a

55

00:02:10,560 --> 00:02:12,750

number

56

00:02:11,099 --> 00:02:16,169

problems depending on what the study

57

00:02:12,750 --> 00:02:18,840

maybe there's also an argument that we

58
00:02:16,169 --> 00:02:21,030
cannot have true controls in these

59
00:02:18,840 --> 00:02:24,330
studies because there's no way to

60
00:02:21,030 --> 00:02:27,060
control for off protocol prayer humans

61
00:02:24,330 --> 00:02:28,980
are likely to be prayed for by family or

62
00:02:27,060 --> 00:02:31,860
friends as well as receiving the

63
00:02:28,979 --> 00:02:34,649
intercessory prayer we certainly can't

64
00:02:31,860 --> 00:02:37,830
ask people to not be prayed for so can

65
00:02:34,650 --> 00:02:40,879
we really actually capture the effects

66
00:02:37,830 --> 00:02:43,770
of additional intercessory prayer and

67
00:02:40,879 --> 00:02:46,439
there is also a range of criticism

68
00:02:43,770 --> 00:02:48,780
relative to potential confounds to the

69
00:02:46,439 --> 00:02:51,479
IP effects that have to do with the

70
00:02:48,780 --> 00:02:53,879
human subjects themselves saying that

71
00:02:51,479 --> 00:02:55,949
any effects of IP actually have to do

72
00:02:53,879 --> 00:02:59,150
with psychologic factors or social

73
00:02:55,949 --> 00:03:03,599
factors inherent in being human or

74
00:02:59,150 --> 00:03:08,810
potentially placebo effects so I decided

75
00:03:03,599 --> 00:03:12,120
to do my study for a couple of reasons

76
00:03:08,810 --> 00:03:16,110
one being is one way to begin to counter

77
00:03:12,120 --> 00:03:20,219
some of those criticisms and as I was

78
00:03:16,110 --> 00:03:22,620
reflecting on this whole issue I thought

79
00:03:20,219 --> 00:03:24,780
about how useful an animal model would

80
00:03:22,620 --> 00:03:27,750
be to control for for example human

81
00:03:24,780 --> 00:03:29,819
confounds to help control for off

82
00:03:27,750 --> 00:03:32,280
protocol prayer even though there are

83
00:03:29,819 --> 00:03:34,199
some individuals who pray for healing

84
00:03:32,280 --> 00:03:36,750
and well-being of all life on the planet

85
00:03:34,199 --> 00:03:38,369
those people are fewer than the

86

00:03:36,750 --> 00:03:43,080
individuals who would be praying for

87
00:03:38,370 --> 00:03:45,150
humans only and so a non-human primate

88
00:03:43,080 --> 00:03:47,160
model in particular provides an

89
00:03:45,150 --> 00:03:49,170
interesting parallel for us to take a

90
00:03:47,159 --> 00:03:52,289
look at the effects of IP but again

91
00:03:49,169 --> 00:03:54,899
offering for a variety of controls also

92
00:03:52,289 --> 00:03:57,689
controlled access to data animals always

93
00:03:54,900 --> 00:04:00,750
show up for their lab appointments it

94
00:03:57,689 --> 00:04:03,210
seems it can be challenging though to

95
00:04:00,750 --> 00:04:07,159
find a comparable disorder when we find

96
00:04:03,210 --> 00:04:09,629
in animals that we can compare to humans

97
00:04:07,159 --> 00:04:12,990
self-injurious behavior is one of those

98
00:04:09,629 --> 00:04:16,259
disorders self-injurious behavior refers

99
00:04:12,990 --> 00:04:19,199
to potential a potentially severe form

100
00:04:16,259 --> 00:04:19,599

of behavioral pathology it's often found

101

00:04:19,199 --> 00:04:23,079
in

102

00:04:19,600 --> 00:04:25,750
groups of primates captive primates it

103

00:04:23,079 --> 00:04:28,659
can consist of a variety of behaviors

104

00:04:25,750 --> 00:04:30,610
like hair plucking for example /

105

00:04:28,660 --> 00:04:33,370
grooming to the point of creating new

106

00:04:30,610 --> 00:04:36,100
wounds or perhaps aggravating existing

107

00:04:33,370 --> 00:04:38,649
wounds there seems to be a psychologic

108

00:04:36,100 --> 00:04:40,920
component so the etiology of this of

109

00:04:38,649 --> 00:04:43,120
this disorder appears to be found in

110

00:04:40,920 --> 00:04:45,610
primates who have been subjected to

111

00:04:43,120 --> 00:04:47,920
particularly adverse early experiences

112

00:04:45,610 --> 00:04:51,460
and have a variety of stressful

113

00:04:47,920 --> 00:04:54,340
experiences across their life and there

114

00:04:51,459 --> 00:04:56,769
are similarities between SIV in primates

115
00:04:54,339 --> 00:04:58,689
and obsessive-compulsive disorder in

116
00:04:56,769 --> 00:05:01,089
humans we can see people who perhaps

117
00:04:58,689 --> 00:05:03,519
engage in aggressive repetitive

118
00:05:01,089 --> 00:05:08,349
hand-washing and they can actually end

119
00:05:03,519 --> 00:05:09,969
up creating wounds on their hands SI b

120
00:05:08,350 --> 00:05:12,310
is believed related to serotonergic

121
00:05:09,970 --> 00:05:14,500
system dysregulation that's thought that

122
00:05:12,310 --> 00:05:15,790
there is too little serotonin centrally

123
00:05:14,500 --> 00:05:18,610
we see that in obsessive-compulsive

124
00:05:15,790 --> 00:05:20,850
disorder in people as well there's also

125
00:05:18,610 --> 00:05:23,259
data to suggest that there's HPA axis

126
00:05:20,850 --> 00:05:25,470
dysregulation that's occurring to some

127
00:05:23,259 --> 00:05:27,459
data suggesting to high levels of

128
00:05:25,470 --> 00:05:31,270
glucocorticoids particularly cortisol

129
00:05:27,459 --> 00:05:34,269
other data suggesting that it may be too

130
00:05:31,269 --> 00:05:36,779
little low levels what are the therapies

131
00:05:34,269 --> 00:05:38,769
for treating self-injurious behavior

132
00:05:36,779 --> 00:05:41,049
increasing the central levels of

133
00:05:38,769 --> 00:05:43,180
serotonin particularly through the

134
00:05:41,050 --> 00:05:45,759
administration of a particular class of

135
00:05:43,180 --> 00:05:48,040
antidepressants SSRIs or selective

136
00:05:45,759 --> 00:05:50,319
serotonin reuptake inhibitors you'd know

137
00:05:48,040 --> 00:05:53,530
it as paxil prozac that class of

138
00:05:50,319 --> 00:05:56,740
antidepressants it works in people it

139
00:05:53,529 --> 00:05:59,949
also works in primate however there are

140
00:05:56,740 --> 00:06:02,019
many animal labs primate labs who are

141
00:05:59,949 --> 00:06:05,050
too small and don't have the funding to

142
00:06:02,019 --> 00:06:07,899
be able to afford SSRI therapy it's

143

00:06:05,050 --> 00:06:10,270
really quite expensive so an alternative

144
00:06:07,899 --> 00:06:13,419
that's been used is all l-tryptophan

145
00:06:10,269 --> 00:06:16,240
it's a dietary component it's taken

146
00:06:13,420 --> 00:06:18,340
orally with the thought that central

147
00:06:16,240 --> 00:06:22,030
levels of serotonin would increase and

148
00:06:18,339 --> 00:06:25,919
in turn change the consequent behavior

149
00:06:22,029 --> 00:06:28,649
or reduce the self injurious behavior

150
00:06:25,920 --> 00:06:29,949
wound healing is a complex biological

151
00:06:28,649 --> 00:06:33,129
process it

152
00:06:29,949 --> 00:06:35,769
occurs across three nonlinear phases the

153
00:06:33,129 --> 00:06:38,110
first phase is inflammation significant

154
00:06:35,769 --> 00:06:40,629
for blood clotting and migration of a

155
00:06:38,110 --> 00:06:43,330
variety of immune cells to the wound

156
00:06:40,629 --> 00:06:45,610
site the second is proliferation and

157
00:06:43,329 --> 00:06:47,829

granulation tissue formation there is

158

00:06:45,610 --> 00:06:50,470

new tissue that's formed its temporary

159

00:06:47,829 --> 00:06:52,779

tissue is viable but temporary to seal

160

00:06:50,470 --> 00:06:55,510

the wound creating a new epidermal

161

00:06:52,779 --> 00:06:57,279

surface and tissue remodeling with the

162

00:06:55,509 --> 00:06:59,469

goal of actually getting the tissue back

163

00:06:57,279 --> 00:07:02,589

to the original structure and function

164

00:06:59,470 --> 00:07:06,370

there are a number of factors that come

165

00:07:02,589 --> 00:07:08,799

into play across these three processes

166

00:07:06,370 --> 00:07:11,019

these three phases such as the immune

167

00:07:08,800 --> 00:07:13,990

system growth factors chemoattractant

168

00:07:11,019 --> 00:07:17,949

cytokines and oxygen is also very

169

00:07:13,990 --> 00:07:20,790

important not initially a hypo hypoxic

170

00:07:17,949 --> 00:07:23,259

environment helps promote healing but

171

00:07:20,790 --> 00:07:25,890

oxygen is needed needed later on in the

172
00:07:23,259 --> 00:07:28,629
process it's also important to consider

173
00:07:25,889 --> 00:07:30,939
psychological stress in large part

174
00:07:28,629 --> 00:07:32,969
because of the HPA axis and the hormonal

175
00:07:30,939 --> 00:07:36,250
cascade I made reference to earlier

176
00:07:32,970 --> 00:07:38,020
because that just regulates many aspects

177
00:07:36,250 --> 00:07:41,800
of the body including the immune system

178
00:07:38,019 --> 00:07:46,750
and definitely influences negatively the

179
00:07:41,800 --> 00:07:49,240
phases of the wound healing process so

180
00:07:46,750 --> 00:07:51,699
in addition to creating this study to

181
00:07:49,240 --> 00:07:53,500
address some of the criticisms that were

182
00:07:51,699 --> 00:07:55,089
levied there were three other purposes

183
00:07:53,500 --> 00:07:58,600
to this study one was to assess the

184
00:07:55,089 --> 00:08:00,819
effectiveness of IP on wound healing the

185
00:07:58,600 --> 00:08:03,910
second to assess the effects of IP on

186
00:08:00,819 --> 00:08:06,189
self-injurious behavior and the last was

187
00:08:03,910 --> 00:08:09,010
to monitor a variety of physiological

188
00:08:06,189 --> 00:08:11,740
data some blood data and data relative

189
00:08:09,009 --> 00:08:14,439
to the immune system and also levels of

190
00:08:11,740 --> 00:08:16,720
cortisol so we had a snapshot of the

191
00:08:14,439 --> 00:08:21,040
neuroendocrine system all of which

192
00:08:16,720 --> 00:08:22,990
relate to wound healing the animals were

193
00:08:21,040 --> 00:08:25,480
Garnett bush babies their prosimian

194
00:08:22,990 --> 00:08:27,009
primates their small relatively easy to

195
00:08:25,480 --> 00:08:28,810
handle they're about two two and a half

196
00:08:27,009 --> 00:08:31,449
pounds depending on the sex they are

197
00:08:28,810 --> 00:08:34,929
nocturnal and provide the benefits of a

198
00:08:31,449 --> 00:08:36,360
true primate model 22 animals were used

199
00:08:34,929 --> 00:08:37,708
they were resident of the

200

00:08:36,360 --> 00:08:40,110
Jackson State University Center for

201
00:08:37,708 --> 00:08:42,689
prosimian studies ranging in age from 2

202
00:08:40,110 --> 00:08:44,639
to 15 years they were allowed to free

203
00:08:42,690 --> 00:08:47,010
feed nothing changed in terms of their

204
00:08:44,639 --> 00:08:49,139
behavior throughout the study and they

205
00:08:47,009 --> 00:08:52,049
were maintained on a 12 12 light-dark

206
00:08:49,139 --> 00:08:54,149
cycle with dark on set at 8am so that

207
00:08:52,049 --> 00:08:58,679
they were active when we were active

208
00:08:54,149 --> 00:09:02,879
coming into the lab we measured wound

209
00:08:58,679 --> 00:09:05,639
area and severity some love measures red

210
00:09:02,879 --> 00:09:07,769
blood cell data including the account of

211
00:09:05,639 --> 00:09:10,220
red blood cells we took a look at levels

212
00:09:07,769 --> 00:09:12,179
of hemoglobin which is the protein that

213
00:09:10,220 --> 00:09:14,579
assists in the transport of oxygen

214
00:09:12,179 --> 00:09:16,019

throughout the body hematocrit to take a

215

00:09:14,578 --> 00:09:17,699

look at the proportion of red blood

216

00:09:16,019 --> 00:09:21,240

cells of the volume of blood we were

217

00:09:17,700 --> 00:09:23,070

looking at mean corpuscular volume was

218

00:09:21,240 --> 00:09:25,589

there changes in the size of the red

219

00:09:23,070 --> 00:09:27,720

blood cell what happened to the amount

220

00:09:25,589 --> 00:09:30,209

of hemoglobin that the individual cells

221

00:09:27,720 --> 00:09:32,519

were carrying there were a variety of

222

00:09:30,208 --> 00:09:35,518

leukocyte levels white blood cells that

223

00:09:32,519 --> 00:09:39,929

were assessed and again plasma cortisol

224

00:09:35,519 --> 00:09:41,610

I was also interested in behavior I

225

00:09:39,929 --> 00:09:44,338

wanted to see what happened with these

226

00:09:41,610 --> 00:09:47,870

animals grooming so they were videotaped

227

00:09:44,339 --> 00:09:50,130

for 15 minute intervals both am and PM

228

00:09:47,870 --> 00:09:54,120

counterbalanced so that we were able to

229

00:09:50,129 --> 00:09:56,519

achieve some representative sampling

230

00:09:54,120 --> 00:09:58,828

across time there were two variables of

231

00:09:56,519 --> 00:10:01,730

interest to me wound grooming

232

00:09:58,828 --> 00:10:01,729

specifically I