Results:
End of Study Wound Area
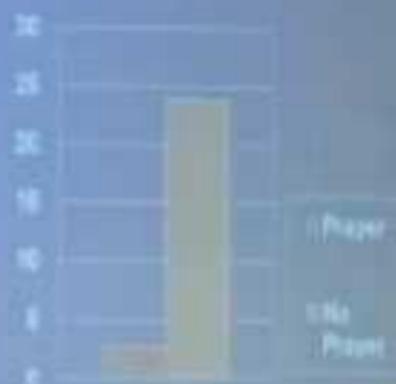
1
00:00:04,309 --> 00:00:01,670
frequently the animals groom their

2
00:00:06,869 --> 00:00:04,319
wounds and for what period of time and

3
00:00:10,390 --> 00:00:06,879
then total grooming overall as well the

4
00:00:12,470 --> 00:00:10,400
frequency of that and the duration

5
00:00:14,709 --> 00:00:12,480
this is lisa if you don't know what a

6
00:00:16,870 --> 00:00:14,719
bush baby looks like

7
00:00:19,590 --> 00:00:16,880
lisa was in our study she ended up being

8
00:00:21,830 --> 00:00:19,600
in the prayer group and i have a picture

9
00:00:24,470 --> 00:00:21,840
here of a wound you can see on her left

10
00:00:27,109 --> 00:00:24,480
paw it was a fairly minor wound some of

11
00:00:29,109 --> 00:00:27,119
them can really get um quite large but

12
00:00:30,470 --> 00:00:29,119
you can see the fur is lost and the skin

13
00:00:34,229 --> 00:00:30,480

is abraded

14
00:00:38,790 --> 00:00:36,150
measures were assessed at baseline and

15
00:00:41,030 --> 00:00:38,800
end of study blood samples were used for

16
00:00:42,709 --> 00:00:41,040
the physiological measures

17
00:00:45,910 --> 00:00:42,719
all blood samples were taken in the

18
00:00:49,190 --> 00:00:45,920
morning between 7 and 9 30 a.m

19
00:00:50,950 --> 00:00:49,200
cortisol measures we had to get got

20
00:00:52,709 --> 00:00:50,960
we had to have gotten the cortisol

21
00:00:55,110 --> 00:00:52,719
within three minutes of the animal

22
00:00:57,270 --> 00:00:55,120
capture to control for artificial

23
00:00:59,590 --> 00:00:57,280
inflation of cortisol secondary to the

24
00:01:02,470 --> 00:00:59,600
stress of being captured in their cage

25
00:01:04,469 --> 00:01:02,480
and being brought into the lab

26
00:01:06,550 --> 00:01:04,479
i stratified the wounds by wound

27
00:01:09,109 --> 00:01:06,560
severity so we'll be looking at the more

28
00:01:12,230 --> 00:01:09,119
minor wounds mild to moderate and wounds

29
00:01:14,149 --> 00:01:12,240
that were more severe of moderate to

30
00:01:16,310 --> 00:01:14,159
severe severity

31
00:01:18,550 --> 00:01:16,320
procedure animal the trial was double

32
00:01:20,469 --> 00:01:18,560
blind it was someone uninvolved with the

33
00:01:22,390 --> 00:01:20,479
study that randomized the animals dealt

34
00:01:23,910 --> 00:01:22,400
with the intercessors

35
00:01:25,910 --> 00:01:23,920
all animals were treated for

36
00:01:28,230 --> 00:01:25,920
self-injurious behavior so they all

37
00:01:30,070 --> 00:01:28,240
received oral l-tryptophan to try to

38
00:01:31,910 --> 00:01:30,080

help with their condition

39
00:01:34,789 --> 00:01:31,920
there were two groups the animals who

40
00:01:38,069 --> 00:01:34,799
were receiving prayer and tryptophan and

41
00:01:40,069 --> 00:01:38,079
our usual care or tryptophan only group

42
00:01:41,270 --> 00:01:40,079
they received the tryptophan daily

43
00:01:44,390 --> 00:01:41,280
crushed in

44
00:01:46,789 --> 00:01:44,400
yogurt and fed before their meal time

45
00:01:48,950 --> 00:01:46,799
the ip was coincident with the first day

46
00:01:51,749 --> 00:01:48,960
of tryptophan administration and the

47
00:01:53,990 --> 00:01:51,759
prayer continued for four weeks

48
00:01:56,389 --> 00:01:54,000
the intercessors were self-identified as

49
00:01:57,910 --> 00:01:56,399
christian they all engaged in a regular

50
00:01:59,830 --> 00:01:57,920
prayer practice

51
00:02:01,830 --> 00:01:59,840
they all had prior experience with

52
00:02:03,910 --> 00:02:01,840
praying for healing from a distance it

53
00:02:06,870 --> 00:02:03,920
was important to me to try to capture as

54
00:02:09,830 --> 00:02:06,880
many intercessors who had prior clinical

55
00:02:11,990 --> 00:02:09,840
trial prayer experience and most of the

56
00:02:14,229 --> 00:02:12,000
intercessors in fact did

57
00:02:16,710 --> 00:02:14,239
all held the belief that god wants all

58
00:02:18,470 --> 00:02:16,720
creatures healthy and whole it was i

59
00:02:20,550 --> 00:02:18,480
learned a great deal from this study in

60
00:02:22,229 --> 00:02:20,560
many levels and one was

61
00:02:24,550 --> 00:02:22,239
the number of christian intercessors who

62
00:02:26,309 --> 00:02:24,560
would not pray for animals uh believing

63
00:02:29,430 --> 00:02:26,319

that god would only want people to be

64
00:02:31,910 --> 00:02:29,440
healthy and whole so um i i

65
00:02:33,670 --> 00:02:31,920
i found them there are those of us who

66
00:02:35,910 --> 00:02:33,680
uh hold that belief

67
00:02:38,550 --> 00:02:35,920
and prayer was provided daily during the

68
00:02:40,470 --> 00:02:38,560
four-week time frame

69
00:02:42,390 --> 00:02:40,480
the intercessors only received the

70
00:02:44,550 --> 00:02:42,400
animal's names so they would have

71
00:02:47,670 --> 00:02:44,560
received a list that was lisa shawn

72
00:02:49,030 --> 00:02:47,680
daryl felix and so on that's all they

73
00:02:50,710 --> 00:02:49,040
received there were intercessors who

74
00:02:51,830 --> 00:02:50,720
didn't even know what a bush baby looked

75
00:02:53,830 --> 00:02:51,840
like

76
00:02:55,910 --> 00:02:53,840
they were asked to pray daily within the

77
00:02:57,670 --> 00:02:55,920
specific study dates i provided them

78
00:02:59,270 --> 00:02:57,680
with no feedback in terms of the

79
00:03:01,190 --> 00:02:59,280
animal's progress

80
00:03:03,670 --> 00:03:01,200
they were told what the bush babies

81
00:03:06,229 --> 00:03:03,680
looked like so that they could have

82
00:03:08,390 --> 00:03:06,239
an image in their mind

83
00:03:11,430 --> 00:03:08,400
and desired outcomes i opted for

84
00:03:12,550 --> 00:03:11,440
directed prayer but did not control to

85
00:03:14,149 --> 00:03:12,560
check to see whether or not the

86
00:03:16,070 --> 00:03:14,159
intercessors actually followed the

87
00:03:18,470 --> 00:03:16,080
specific direction so they were asked to

88
00:03:20,390 --> 00:03:18,480

pray for effectiveness of the medication

89
00:03:23,750 --> 00:03:20,400
that the behaviors become more calm and

90
00:03:27,350 --> 00:03:23,760
non-stressed and that the wounds healed

91
00:03:29,830 --> 00:03:27,360
um took a look by ancova at wound immune

92
00:03:32,149 --> 00:03:29,840
and cortisol variables controlling for

93
00:03:34,390 --> 00:03:32,159
age because of the changes in the immune

94
00:03:37,030 --> 00:03:34,400
system as one ages it becomes less

95
00:03:39,350 --> 00:03:37,040
effective and mancoba to take a look at

96
00:03:42,470 --> 00:03:39,360
the red blood cell variables and

97
00:03:44,949 --> 00:03:42,480
behavioral variables by t-test here's a

98
00:03:47,750 --> 00:03:44,959
snapshot of the ip or the intercessory

99
00:03:52,309 --> 00:03:47,760
prayer in the non-prayer group

100
00:03:55,430 --> 00:03:52,319
by gender age was comparable as well

101
00:03:56,390 --> 00:03:55,440
and let's move into some of the goodies

102
00:04:00,949 --> 00:03:56,400
here

103
00:04:02,789 --> 00:04:00,959
like i have this divided up in three

104
00:04:04,070 --> 00:04:02,799
ways so you'll see this is for both

105
00:04:07,750 --> 00:04:04,080
groups intercessory prayer

106
00:04:10,309 --> 00:04:07,760
non-intercessory prayer ip1 and nip1 are

107
00:04:13,670 --> 00:04:10,319
the mild to moderate wounds and when you

108
00:04:16,789 --> 00:04:13,680
see ip2 and nip2 those are the more

109
00:04:18,629 --> 00:04:16,799
significant wounds that the animals had

110
00:04:21,030 --> 00:04:18,639
there was no significant difference at

111
00:04:23,110 --> 00:04:21,040
baseline we can see that in fact the

112
00:04:25,189 --> 00:04:23,120
wounds are relatively comparable across

113
00:04:27,430 --> 00:04:25,199

both groups although there was a fairly

114
00:04:28,790 --> 00:04:27,440
significant standard deviation that was

115
00:04:31,189 --> 00:04:28,800
accounted for

116
00:04:32,870 --> 00:04:31,199
by the animals that were down here the

117
00:04:35,189 --> 00:04:32,880
wounds were quite different in the mild

118
00:04:38,150 --> 00:04:35,199
to moderate group much smaller

119
00:04:40,390 --> 00:04:38,160
much less significant

120
00:04:43,030 --> 00:04:40,400
and here's a picture of the wound area

121
00:04:44,870 --> 00:04:43,040
at baseline so that we see the prayer

122
00:04:46,469 --> 00:04:44,880
groups are on the left

123
00:04:48,550 --> 00:04:46,479
no prayer are going to be sitting on the

124
00:04:50,150 --> 00:04:48,560
right on the graphs that i have and

125
00:04:52,390 --> 00:04:50,160
there's about three quarters of a

126
00:04:54,070 --> 00:04:52,400
centimeter difference in the mild to

127
00:04:57,110 --> 00:04:54,080
moderate animals

128
00:04:59,909 --> 00:04:57,120
here we've got maybe a centimeter and a

129
00:05:03,270 --> 00:04:59,919
half that's uh different between those

130
00:05:06,710 --> 00:05:03,280
two groups at baseline

131
00:05:09,270 --> 00:05:06,720
the only significant variable

132
00:05:10,950 --> 00:05:09,280
no differences in behavior wound area

133
00:05:12,950 --> 00:05:10,960
and so on the only significant

134
00:05:14,230 --> 00:05:12,960
physiological variable had to do with

135
00:05:16,790 --> 00:05:14,240
monocytes

136
00:05:21,510 --> 00:05:16,800
and they were significantly lower in the

137
00:05:25,749 --> 00:05:23,670
end of study so what happened after four

138
00:05:27,990 --> 00:05:25,759

weeks of praying to the wounds i've

139
00:05:30,469 --> 00:05:28,000
included the baseline data in orange

140
00:05:32,629 --> 00:05:30,479
here so we can see if we take a look at

141
00:05:34,469 --> 00:05:32,639
the ip group off the bat it dropped from

142
00:05:37,110 --> 00:05:34,479
a little over 10 centimeters to not

143
00:05:38,870 --> 00:05:37,120
quite two with a standard deviation

144
00:05:41,430 --> 00:05:38,880
that's markedly different from where we

145
00:05:43,350 --> 00:05:41,440
were at baseline we actually see in the

146
00:05:46,150 --> 00:05:43,360
prayer that would the group that did not

147
00:05:48,310 --> 00:05:46,160
receive prayer that although the overall

148
00:05:49,590 --> 00:05:48,320
size of the um

149
00:05:51,749 --> 00:05:49,600
well the wounds and the standard

150
00:05:53,990 --> 00:05:51,759
deviation went down somewhat thank you

151
00:05:56,710 --> 00:05:54,000
i'll move through this fairly quickly

152
00:06:00,230 --> 00:05:56,720
i'm down to five minutes here so what we

153
00:06:02,150 --> 00:06:00,240
see happening is that the biggest change

154
00:06:04,550 --> 00:06:02,160
is in the animals with the more severe

155
00:06:06,309 --> 00:06:04,560
wounds where we had three quarters of a

156
00:06:08,070 --> 00:06:06,319
centimeter difference there we're down

157
00:06:10,550 --> 00:06:08,080
to about one and a half

158
00:06:13,110 --> 00:06:10,560
but here we're down to not quite three

159
00:06:14,629 --> 00:06:13,120
centimeters down from 20 centimeters and

160
00:06:15,430 --> 00:06:14,639
change

161
00:06:17,430 --> 00:06:15,440
so

162
00:06:19,110 --> 00:06:17,440
um a significant difference i'm going to

163
00:06:21,110 --> 00:06:19,120

move through relatively quickly so that

164
00:06:24,309 --> 00:06:21,120
you can see all the graphs a significant

165
00:06:26,309 --> 00:06:24,319
difference in the end of wound area

166
00:06:29,670 --> 00:06:26,319
here's what happened remembering the

167
00:06:30,870 --> 00:06:29,680
graphs at baseline we see that this is

168
00:06:33,350 --> 00:06:30,880
changed

169
00:06:35,670 --> 00:06:33,360
decreased

170
00:06:37,350 --> 00:06:35,680
in the less severe group and markedly in

171
00:06:39,189 --> 00:06:37,360
the more severe group

172
00:06:41,029 --> 00:06:39,199
we also had significant differences in

173
00:06:43,270 --> 00:06:41,039
terms of red blood cell

174
00:06:45,350 --> 00:06:43,280
data everything was significant what

175
00:06:47,270 --> 00:06:45,360
happened in red blood cells increased in

176
00:06:49,670 --> 00:06:47,280
the prayed for group they decreased in

177
00:06:52,150 --> 00:06:49,680
the group that did not receive prayer

178
00:06:53,670 --> 00:06:52,160
we saw hemoglobin increased in the group

179
00:06:56,469 --> 00:06:53,680
that was prayed for

180
00:06:59,029 --> 00:06:56,479
slight increase in the no prayer group

181
00:07:00,790 --> 00:06:59,039
hematocrit also increased in the prayer

182
00:07:03,430 --> 00:07:00,800
group less so in the group with no

183
00:07:06,070 --> 00:07:03,440
prayer what happened to the blood cells

184
00:07:07,990 --> 00:07:06,080
themselves again significant differences

185
00:07:11,110 --> 00:07:08,000
other than the concentration was

186
00:07:13,510 --> 00:07:11,120
approaching significance the mchc the

187
00:07:15,830 --> 00:07:13,520
other variables were significant

188
00:07:17,830 --> 00:07:15,840

interestingly the size of the corpuscle

189
00:07:20,550 --> 00:07:17,840
decreased in the group that was prayed

190
00:07:22,870 --> 00:07:20,560
for slightly where it increased in the

191
00:07:25,029 --> 00:07:22,880
group that was not prayed for so we have

192
00:07:27,670 --> 00:07:25,039
smaller red blood cells there was a

193
00:07:29,909 --> 00:07:27,680
consequent change in terms of the amount

194
00:07:32,469 --> 00:07:29,919
of hemoglobin concentration with an

195
00:07:34,870 --> 00:07:32,479
increase in the prayer group

196
00:07:37,029 --> 00:07:34,880
the monocyte levels this was the only

197
00:07:39,189 --> 00:07:37,039
immune data that i had that changed

198
00:07:41,990 --> 00:07:39,199
remembering that the more severe animals

199
00:07:44,550 --> 00:07:42,000
at baseline were significantly lower

200
00:07:45,990 --> 00:07:44,560
they changed to become significantly

201
00:07:49,029 --> 00:07:46,000
greater here's what happened to the

202
00:07:50,790 --> 00:07:49,039
monocytes in that group this was

203
00:07:56,550 --> 00:07:50,800
i'm sorry i've got my

204
00:08:00,950 --> 00:07:58,309
here's where they were at baseline

205
00:08:02,869 --> 00:08:00,960
that's what happened at end of study

206
00:08:05,430 --> 00:08:02,879
so the animals that needed it the most

207
00:08:07,350 --> 00:08:05,440
got it where they needed it cortisol was

208
00:08:09,189 --> 00:08:07,360
not statistically significant but i

209
00:08:11,909 --> 00:08:09,199
present this data because it was a power

210
00:08:13,909 --> 00:08:11,919
issue clearly cortisol changed more in

211
00:08:16,550 --> 00:08:13,919
the direction we expected in the prayer

212
00:08:17,350 --> 00:08:16,560
for the prayer group than the non-prayer

213
00:08:18,710 --> 00:08:17,360

group

214
00:08:21,350 --> 00:08:18,720
although there was a decrease in

215
00:08:23,749 --> 00:08:21,360
cortisol in the animals that weren't uh

216
00:08:25,350 --> 00:08:23,759
prayed for what happened to grooming

217
00:08:28,150 --> 00:08:25,360
changes in the direction that we would

218
00:08:29,909 --> 00:08:28,160
expect the duration not the frequency of

219
00:08:31,670 --> 00:08:29,919
the number of times that the animals

220
00:08:33,110 --> 00:08:31,680
grew but the amount of time that they

221
00:08:35,430 --> 00:08:33,120
spent grooming their wounds was

222
00:08:38,230 --> 00:08:35,440
decreased significantly and the amount

223
00:08:40,709 --> 00:08:38,240
of time they spent overall grooming was

224
00:08:42,230 --> 00:08:40,719
significantly decreased and here's what

225
00:08:45,430 --> 00:08:42,240
those graphs

226
00:08:50,230 --> 00:08:48,070
so in summary the study supports ip

227
00:08:52,310 --> 00:08:50,240
induced improvements in wound healing

228
00:08:54,949 --> 00:08:52,320
the ip animals had greater reduction in

229
00:08:56,550 --> 00:08:54,959
wound area than the non-ip animals one

230
00:08:58,470 --> 00:08:56,560
of the strengths of the study is the

231
00:09:01,269 --> 00:08:58,480
convergent data that suggests that there

232
00:09:03,190 --> 00:09:01,279
are in fact pathways that would lead to

233
00:09:05,829 --> 00:09:03,200
the improved wound healing on the part

234
00:09:08,389 --> 00:09:05,839
of the animals to make some sense of the

235
00:09:10,070 --> 00:09:08,399
blood data when we see increased numbers

236
00:09:12,870 --> 00:09:10,080
of red blood cells hemoglobin and

237
00:09:15,670 --> 00:09:12,880
hematocrit that would support increased

238
00:09:17,590 --> 00:09:15,680

oxygenation which is critical to improve

239
00:09:20,389 --> 00:09:17,600
healing across time

240
00:09:22,790 --> 00:09:20,399
reduction in mean corpuscular volume

241
00:09:25,509 --> 00:09:22,800
hypothesis but perhaps that assisted

242
00:09:27,990 --> 00:09:25,519
with the extraction capability of being

243
00:09:30,070 --> 00:09:28,000
able to remove oxygen at the wound site

244
00:09:31,670 --> 00:09:30,080
by having somewhat smaller red blood

245
00:09:33,750 --> 00:09:31,680
cells

246
00:09:35,269 --> 00:09:33,760
in terms of the immunological changes

247
00:09:37,670 --> 00:09:35,279
there's some debate whether or not

248
00:09:40,070 --> 00:09:37,680
monocytes or macrophages once they live

249
00:09:41,350 --> 00:09:40,080
in tissue are important to wound healing

250
00:09:42,870 --> 00:09:41,360
there's some question in the animal

251
00:09:45,190 --> 00:09:42,880
literature but we'll air on the side

252
00:09:47,030 --> 00:09:45,200
that in fact they are the significant

253
00:09:49,190 --> 00:09:47,040
improvement in monocytes may have

254
00:09:50,790 --> 00:09:49,200
actually supported the dramatic increase

255
00:09:52,949 --> 00:09:50,800
seen in the more severe group that

256
00:09:55,750 --> 00:09:52,959
received prayer

257
00:09:57,750 --> 00:09:55,760
changes in grooming and a decrease in