



MR. BEYER

1
00:00:02,480 --> 00:00:06,950
houston are you ready for the event

2
00:00:12,310 --> 00:00:10,549
we are ready for the event

3
00:00:13,990 --> 00:00:12,320
house committee on science space and

4
00:00:16,070 --> 00:00:14,000
technology this is mission control

5
00:00:17,189 --> 00:00:16,080
houston please call station for a voice

6
00:00:19,670 --> 00:00:17,199
check

7
00:00:21,590 --> 00:00:19,680
station this is science space and

8
00:00:28,150 --> 00:00:21,600
technology committee chairman lamar

9
00:00:33,990 --> 00:00:30,470
we read you loud and clear sir and uh

10
00:00:36,389 --> 00:00:34,000
welcome aboard your space station

11
00:00:38,150 --> 00:00:36,399
captain kelly and dr lindgren thank you

12
00:00:40,150 --> 00:00:38,160
very very much for spending 20 minutes

13
00:00:42,229 --> 00:00:40,160

with us today we have a number of

14

00:00:44,229 --> 00:00:42,239

members of congress right here eager to

15

00:00:45,750 --> 00:00:44,239

ask you questions and we're going to

16

00:00:47,750 --> 00:00:45,760

keep our questions short to try to get

17

00:00:48,549 --> 00:00:47,760

as many in as possible and i'll start

18

00:00:50,549 --> 00:00:48,559

off

19

00:00:52,389 --> 00:00:50,559

i had a number of questions submitted by

20

00:00:54,310 --> 00:00:52,399

schools and students back home in my

21

00:00:56,229 --> 00:00:54,320

congressional district in texas i

22

00:00:58,709 --> 00:00:56,239

selected one from the winston school in

23

00:01:01,029 --> 00:00:58,719

san antonio and that question just to be

24

00:01:04,070 --> 00:01:01,039

directed to both of you is what should

25

00:01:12,230 --> 00:01:04,080

students study if they want to work for

26

00:01:15,670 --> 00:01:13,750

well sir nasa is a pretty large

27

00:01:17,590 --> 00:01:15,680

organization and there's uh you know

28

00:01:19,270 --> 00:01:17,600

there's all different uh different

29

00:01:22,230 --> 00:01:19,280

fields um

30

00:01:24,710 --> 00:01:22,240

that uh our employees have backgrounds

31

00:01:26,710 --> 00:01:24,720

in but i think you know with specific

32

00:01:28,789 --> 00:01:26,720

specifically you're talking about like

33

00:01:30,390 --> 00:01:28,799

engineering and science and

34

00:01:32,469 --> 00:01:30,400

you know as an astronaut you have to

35

00:01:34,069 --> 00:01:32,479

have a background in in those kind of

36

00:01:36,469 --> 00:01:34,079

fields um

37

00:01:38,390 --> 00:01:36,479

some type of technical degree

38

00:01:40,149 --> 00:01:38,400

um you know there's a lot of confusion a

39

00:01:41,990 --> 00:01:40,159

lot a lot of times people think you know

40

00:01:44,950 --> 00:01:42,000

most of the astronauts come from the

41

00:01:47,030 --> 00:01:44,960

military and that's not not true um we

42

00:01:49,109 --> 00:01:47,040

have you know probably an equal mix in

43

00:01:50,870 --> 00:01:49,119

our office of civilian and military

44

00:01:53,109 --> 00:01:50,880

personnel but i think one thing they

45

00:01:55,749 --> 00:01:53,119

have in common is really uh you know

46

00:01:57,510 --> 00:01:55,759

good performance in their chosen

47

00:01:59,270 --> 00:01:57,520

technical field and then a really

48

00:02:01,429 --> 00:01:59,280

diverse um

49

00:02:03,429 --> 00:02:01,439

you know varied background of the other

50

00:02:05,030 --> 00:02:03,439

things that they do that's not

51
00:02:06,950 --> 00:02:05,040
you know part of their professional life

52
00:02:08,550 --> 00:02:06,960
and what i tell kids is you know they

53
00:02:09,990 --> 00:02:08,560
should pick something that they

54
00:02:11,510 --> 00:02:10,000
something that they like and something

55
00:02:13,990 --> 00:02:11,520
they're interested in because they're

56
00:02:17,110 --> 00:02:14,000
better uh or more likely to do well at

57
00:02:22,630 --> 00:02:20,470
and and i would uh sorry i'd just add um

58
00:02:24,470 --> 00:02:22,640
to what uh scott said that uh when i

59
00:02:25,270 --> 00:02:24,480
talk to kids um

60
00:02:28,150 --> 00:02:25,280
that

61
00:02:29,270 --> 00:02:28,160
want to pursue a career in uh in space

62
00:02:31,830 --> 00:02:29,280
flight and

63
00:02:34,550 --> 00:02:31,840

specifically to to get to come up here

64

00:02:36,790 --> 00:02:34,560

and explore with us that um that they

65

00:02:38,710 --> 00:02:36,800

need to really focus on on the science

66

00:02:40,550 --> 00:02:38,720

and math and and those sorts of things

67

00:02:42,869 --> 00:02:40,560

because that is the the language of

68

00:02:44,470 --> 00:02:42,879

space flight and they need to be fluent

69

00:02:47,030 --> 00:02:44,480

thank you very much the ranking member

70

00:02:48,790 --> 00:02:47,040

is recognized

71

00:02:51,430 --> 00:02:48,800

thank you very much

72

00:02:53,190 --> 00:02:51,440

dr lindgren as a former nurse i'm

73

00:02:56,710 --> 00:02:53,200

thrilled to see a former emergency

74

00:02:57,830 --> 00:02:56,720

medicine practitioner above the station

75

00:03:00,309 --> 00:02:57,840

and

76

00:03:02,390 --> 00:03:00,319

is nasa leveraging your expertise in

77

00:03:05,509 --> 00:03:02,400

medicine and physiology to reduce the

78

00:03:07,910 --> 00:03:05,519

risk for long-term space and travel

79

00:03:15,509 --> 00:03:07,920

and commander kelly thank you as well

80

00:03:19,750 --> 00:03:16,949

thank you for that question ma'am thank

81

00:03:21,270 --> 00:03:19,760

you for your your service uh as a nurse

82

00:03:23,670 --> 00:03:21,280

um

83

00:03:27,350 --> 00:03:23,680

i think that uh nasa you know when we

84

00:03:29,110 --> 00:03:27,360

were selected we we definitely take um

85

00:03:32,149 --> 00:03:29,120

individuals from a variety of career

86

00:03:34,309 --> 00:03:32,159

fields and so i feel very fortunate to

87

00:03:36,309 --> 00:03:34,319

represent the biomedical and and

88

00:03:39,270 --> 00:03:36,319

healthcare professions uh in the

89

00:03:41,350 --> 00:03:39,280

astronaut office and uh

90

00:03:43,990 --> 00:03:41,360

i think that uh we certainly

91

00:03:46,869 --> 00:03:44,000

um i i certainly utilize my background

92

00:03:48,470 --> 00:03:46,879

in terms of uh teamwork and good

93

00:03:51,350 --> 00:03:48,480

communication

94

00:03:53,750 --> 00:03:51,360

being able to work under

95

00:03:55,910 --> 00:03:53,760

difficult conditions those all that

96

00:03:57,670 --> 00:03:55,920

training has benefited me up here

97

00:03:59,990 --> 00:03:57,680

speaking specifically to the the

98

00:04:01,429 --> 00:04:00,000

biomedical research and

99

00:04:04,390 --> 00:04:01,439

identifying

100

00:04:06,470 --> 00:04:04,400

areas and experiments where we can

101
00:04:08,149 --> 00:04:06,480
help help folks on the ground you know

102
00:04:10,630 --> 00:04:08,159
we have a whole suite of experiments up

103
00:04:12,789 --> 00:04:10,640
here 240 experiments during the time

104
00:04:14,869 --> 00:04:12,799
that i hear i'm here and i think scott

105
00:04:17,349 --> 00:04:14,879
will have seen 400 different research

106
00:04:18,870 --> 00:04:17,359
projects so during his year up here many

107
00:04:21,110 --> 00:04:18,880
of those are biomedical in nature

108
00:04:24,469 --> 00:04:21,120
looking at

109
00:04:27,110 --> 00:04:24,479
bone loss muscle wasting

110
00:04:28,710 --> 00:04:27,120
immune system dysfunction and

111
00:04:31,270 --> 00:04:28,720
we have uh

112
00:04:33,510 --> 00:04:31,280
a project that was up here um that scott

113
00:04:38,310 --> 00:04:33,520

got to work on with uh mice

114

00:04:43,270 --> 00:04:40,870

plus uh identify areas where we can

115

00:04:45,270 --> 00:04:43,280

bring results from up here to benefit

116

00:04:46,710 --> 00:04:45,280

folks back on the ground

117

00:04:47,670 --> 00:04:46,720

thank you the gentleman from illinois mr

118

00:04:49,590 --> 00:04:47,680

hoakman

119

00:04:52,150 --> 00:04:49,600

thank you chairman thank you both for

120

00:04:54,790 --> 00:04:52,160

your service we are so grateful uh

121

00:04:55,990 --> 00:04:54,800

captain kelly dr lindgren great to have

122

00:04:58,469 --> 00:04:56,000

you with us in our committee today i

123

00:04:59,990 --> 00:04:58,479

talked to my uh local expert my 11 year

124

00:05:01,909 --> 00:05:00,000

old son cole

125

00:05:04,469 --> 00:05:01,919

to ask him a question he would want to

126

00:05:06,310 --> 00:05:04,479

ask you one question was if you know

127

00:05:08,390 --> 00:05:06,320

what cotton your continent you're over

128

00:05:09,430 --> 00:05:08,400

right now or how fast you circumvent the

129

00:05:11,749 --> 00:05:09,440

globe

130

00:05:13,029 --> 00:05:11,759

and then also what experiment or project

131

00:05:19,990 --> 00:05:13,039

you're most excited about that you're

132

00:05:33,110 --> 00:05:20,870

so

133

00:05:35,430 --> 00:05:33,120

europa and it takes us

134

00:05:37,670 --> 00:05:35,440

at 17 500

135

00:05:39,510 --> 00:05:37,680

miles an hour it takes us 90 minutes to

136

00:05:41,350 --> 00:05:39,520

go around the earth one time so we're

137

00:05:44,790 --> 00:05:41,360

going pretty fast

138

00:05:47,990 --> 00:05:44,800

and um as far as projects that uh

139

00:05:51,029 --> 00:05:48,000

that i'm excited about um

140

00:05:52,950 --> 00:05:51,039

you know we do so much on board here

141

00:05:55,430 --> 00:05:52,960

between like the space walks that shell

142

00:05:57,270 --> 00:05:55,440

and i just did to robotics activities we

143

00:05:59,350 --> 00:05:57,280

have a visiting vehicle

144

00:06:02,070 --> 00:05:59,360

coming on sunday should launch tomorrow

145

00:06:04,629 --> 00:06:02,080

the orbital sciences

146

00:06:07,029 --> 00:06:04,639

cargo vehicle we're excited about that

147

00:06:09,270 --> 00:06:07,039

and then the all the research that we do

148

00:06:10,469 --> 00:06:09,280

and the research is in uh all kinds of

149

00:06:12,950 --> 00:06:10,479

different

150

00:06:16,070 --> 00:06:12,960

the categories whether it's research

151

00:06:19,189 --> 00:06:16,080

that's focused on future exploration

152

00:06:21,990 --> 00:06:19,199

or research that is focused on

153

00:06:23,510 --> 00:06:22,000

you know improving life on earth and you

154

00:06:25,110 --> 00:06:23,520

know both of those are in all different

155

00:06:27,110 --> 00:06:25,120

kinds of disciplines whether it's

156

00:06:28,710 --> 00:06:27,120

medical stuff or

157

00:06:31,430 --> 00:06:28,720

you know for instance a life support

158

00:06:33,350 --> 00:06:31,440

system here and how we you know

159

00:06:34,390 --> 00:06:33,360

replenish the environment of oxygen

160

00:06:36,070 --> 00:06:34,400

scrub it

161

00:06:37,350 --> 00:06:36,080

of carbon dioxide

162

00:06:39,350 --> 00:06:37,360

create

163

00:06:41,670 --> 00:06:39,360

water from our urine use that water to

164

00:06:44,070 --> 00:06:41,680

produce oxygen is something that's very

165

00:06:47,029 --> 00:06:44,080

important for exploration and for me you

166

00:06:49,990 --> 00:06:47,039

know all that stuff is exciting in

167

00:06:51,990 --> 00:06:50,000

in different ways but i think

168

00:06:54,790 --> 00:06:52,000

you know the one thing that excites uh

169

00:06:57,110 --> 00:06:54,800

me the most uh for this particular fight

170

00:06:57,909 --> 00:06:57,120

is the the idea of being up here for a

171

00:07:00,469 --> 00:06:57,919

year

172

00:07:02,309 --> 00:07:00,479

and expanding the envelope about you

173

00:07:04,150 --> 00:07:02,319

know how people can live and work in

174

00:07:06,070 --> 00:07:04,160

space for longer periods of time because

175

00:07:08,550 --> 00:07:06,080

that's what it's going to take uh

176

00:07:10,469 --> 00:07:08,560

understanding that better for us to

177

00:07:13,189 --> 00:07:10,479

to you know travel further from our

178

00:07:16,150 --> 00:07:13,199

planet and hopefully one day go to mars

179

00:07:18,710 --> 00:07:16,160

the gentleman from maryland miss edwards

180

00:07:20,150 --> 00:07:18,720

thank you commander kelly dr lendgren uh

181

00:07:22,150 --> 00:07:20,160

really appreciate your service and

182

00:07:23,749 --> 00:07:22,160

you're being here with us today um

183

00:07:26,469 --> 00:07:23,759

commander kelly i understand that you

184

00:07:28,309 --> 00:07:26,479

have tried the outreaches romaine

185

00:07:30,950 --> 00:07:28,319

lettuce and i wonder if you could tell

186

00:07:33,830 --> 00:07:30,960

us about the challenges of

187

00:07:35,830 --> 00:07:33,840

growing and developing a food supply and

188

00:07:37,670 --> 00:07:35,840

what that tells you about the things

189

00:07:40,309 --> 00:07:37,680

that we need to know if we're thinking

190

00:07:47,909 --> 00:07:40,319

about long-term extended stay and visits

191

00:07:52,550 --> 00:07:50,629

um that's a a tough question you ask i

192

00:07:54,309 --> 00:07:52,560

mean i i'm not

193

00:07:57,589 --> 00:07:54,319

you know i don't quite understand the

194

00:07:58,869 --> 00:07:57,599

logistics train of of going to mars and

195

00:08:01,029 --> 00:07:58,879

at what point

196

00:08:03,189 --> 00:08:01,039

it's more efficient to

197

00:08:04,710 --> 00:08:03,199

uh grow your own food you know exactly

198

00:08:06,629 --> 00:08:04,720

the point where it's more efficient to

199

00:08:08,390 --> 00:08:06,639

grow your own food with the resources

200

00:08:10,390 --> 00:08:08,400

you need to do that versus maybe

201
00:08:11,270 --> 00:08:10,400
pre-positioning food there

202
00:08:12,710 --> 00:08:11,280
um

203
00:08:14,390 --> 00:08:12,720
but

204
00:08:17,589 --> 00:08:14,400
you know with the food we had on board

205
00:08:19,270 --> 00:08:17,599
here it it besides the nutrition and the

206
00:08:21,510 --> 00:08:19,280
the freshness of it there are other

207
00:08:23,670 --> 00:08:21,520
things that it does provide i mean we

208
00:08:26,070 --> 00:08:23,680
live in an environment here now that is

209
00:08:27,029 --> 00:08:26,080
just pretty much devoid of life except

210
00:08:27,830 --> 00:08:27,039
for us

211
00:08:29,670 --> 00:08:27,840
so

212
00:08:31,350 --> 00:08:29,680
you know there's the nutritional aspect

213
00:08:33,269 --> 00:08:31,360

of it but also there's a psychological

214

00:08:35,829 --> 00:08:33,279

aspect about having something else you

215

00:08:37,990 --> 00:08:35,839

know green up here that's uh that's

216

00:08:40,230 --> 00:08:38,000

living that we can uh take care of that

217

00:08:42,949 --> 00:08:40,240

we can see grow and that we can you know

218

00:08:44,949 --> 00:08:42,959

utilize later as food

219

00:08:46,389 --> 00:08:44,959

right now we're growing flowers actually

220

00:08:48,389 --> 00:08:46,399

and you know obviously we're not going

221

00:08:50,389 --> 00:08:48,399

to eat those but

222

00:08:52,150 --> 00:08:50,399

you know it's it's to demonstrate our

223

00:08:53,990 --> 00:08:52,160

ability to grow something else and also

224

00:08:55,750 --> 00:08:54,000

to see you know what effect that may

225

00:08:57,910 --> 00:08:55,760

have on us from a psychological

226

00:08:59,269 --> 00:08:57,920

standpoint one of the things i really

227

00:09:01,829 --> 00:08:59,279

miss up here

228

00:09:03,670 --> 00:09:01,839

besides you know human contact and the

229

00:09:05,269 --> 00:09:03,680

you know my friends and family on earth

230

00:09:07,190 --> 00:09:05,279

which is pretty much the number one

231

00:09:10,230 --> 00:09:07,200

thing i miss is

232

00:09:12,949 --> 00:09:10,240

the ability to be outside and to

233

00:09:15,990 --> 00:09:12,959

experience nature nature and i think

234

00:09:17,750 --> 00:09:16,000

having a uh you know ability to grow

235

00:09:19,030 --> 00:09:17,760

um whether it's something you're going

236

00:09:20,310 --> 00:09:19,040

to eat or something you're going to look

237

00:09:22,870 --> 00:09:20,320

at or something that's going to help

238

00:09:24,870 --> 00:09:22,880

replenish our you know our atmosphere

239

00:09:26,630 --> 00:09:24,880

that we're you know that we require for

240

00:09:28,630 --> 00:09:26,640

life

241

00:09:30,150 --> 00:09:28,640

is something that's very important and i

242

00:09:32,949 --> 00:09:30,160

think it does have a

243

00:09:34,630 --> 00:09:32,959

a definite place in the future and our

244

00:09:35,990 --> 00:09:34,640

journey to mars

245

00:09:37,350 --> 00:09:36,000

the gentleman from oklahoma mr

246

00:09:38,949 --> 00:09:37,360

breinstein

247

00:09:41,670 --> 00:09:38,959

thank you mr chairman and thank you to

248

00:09:43,670 --> 00:09:41,680

our astronauts i wanted to ask a

249

00:09:45,590 --> 00:09:43,680

question there's a growing concern among

250

00:09:47,829 --> 00:09:45,600

members on this committee about the

251
00:09:49,990 --> 00:09:47,839
orbital debris problem that's in low

252
00:09:51,509 --> 00:09:50,000
earth orbit and i wanted to ask a

253
00:09:53,110 --> 00:09:51,519
question about

254
00:09:54,790 --> 00:09:53,120
some of the precautionary measures i

255
00:09:57,269 --> 00:09:54,800
know that the chances are remote and the

256
00:09:59,430 --> 00:09:57,279
probability is low but can you share

257
00:10:01,110 --> 00:09:59,440
with us what your precautionary measures

258
00:10:03,190 --> 00:10:01,120
are and also

259
00:10:04,870 --> 00:10:03,200
how often they occur and if it impacts

260
00:10:12,389 --> 00:10:04,880
your ability to do your work on the

261
00:10:15,269 --> 00:10:13,829
yes sir so

262
00:10:16,389 --> 00:10:15,279
that's a

263
00:10:17,990 --> 00:10:16,399

pretty

264

00:10:19,590 --> 00:10:18,000

complicated problem and you know when

265

00:10:21,670 --> 00:10:19,600

you see the graphics you see all the

266

00:10:24,550 --> 00:10:21,680

stuff that's flying around the earth the

267

00:10:26,389 --> 00:10:24,560

space junk and you know chell and i just

268

00:10:28,150 --> 00:10:26,399

recently went outside and you can see

269

00:10:29,590 --> 00:10:28,160

all the little dings on the outside of

270

00:10:31,990 --> 00:10:29,600

the space station they're all over the

271

00:10:33,350 --> 00:10:32,000

place from stuff that's hit the station

272

00:10:35,910 --> 00:10:33,360

now fortunately

273

00:10:38,310 --> 00:10:35,920

you know most of that stuff is small and

274

00:10:40,150 --> 00:10:38,320

hasn't done any significant damage but

275

00:10:42,550 --> 00:10:40,160

there is damage done and there's

276

00:10:44,069 --> 00:10:42,560

obviously the chance of uh

277

00:10:46,310 --> 00:10:44,079

more significant damage there's

278

00:10:49,590 --> 00:10:46,320

shielding on many parts of the space

279

00:10:51,829 --> 00:10:49,600

station outside that will prevent um

280

00:10:54,870 --> 00:10:51,839

you know some kind of catastrophic uh

281

00:10:56,710 --> 00:10:54,880

impact from small things and

282

00:10:58,389 --> 00:10:56,720

and things in orbit stuff that's you

283

00:11:00,790 --> 00:10:58,399

know coming from

284

00:11:01,910 --> 00:11:00,800

you know deep space is is is going much

285

00:11:03,350 --> 00:11:01,920

faster and

286

00:11:04,870 --> 00:11:03,360

presents even a larger problem but

287

00:11:05,990 --> 00:11:04,880

there's really nothing we can do about

288

00:11:08,069 --> 00:11:06,000

about that

289

00:11:09,430 --> 00:11:08,079

um occasionally we have to move the

290

00:11:11,350 --> 00:11:09,440

space station

291

00:11:12,710 --> 00:11:11,360

um we've probably done it since i've

292

00:11:16,550 --> 00:11:12,720

been up here maybe

293

00:11:20,790 --> 00:11:18,310

you know the u.s air force can track a

294

00:11:22,949 --> 00:11:20,800

lot of a lot of stuff but some stuff

295

00:11:25,350 --> 00:11:22,959

they can't see some stuff we see very

296

00:11:27,509 --> 00:11:25,360

late and we had a case where

297

00:11:29,590 --> 00:11:27,519

you know i had to close all i don't know

298

00:11:32,069 --> 00:11:29,600

maybe 20 hatches on the u.s side of the

299

00:11:36,949 --> 00:11:32,079

space station and we had to go down to

300

00:11:41,509 --> 00:11:39,590

you know the time of closest approach to

301
00:11:45,030 --> 00:11:41,519
pass because we didn't have time to move

302
00:11:46,389 --> 00:11:45,040
the space station so there is uh

303
00:11:49,430 --> 00:11:46,399
you know there are things we can do to

304
00:11:51,670 --> 00:11:49,440
mitigate mitigate the risk

305
00:11:54,069 --> 00:11:51,680
with shielding with moving the space

306
00:11:55,990 --> 00:11:54,079
station with sheltering in place should

307
00:11:57,269 --> 00:11:56,000
we not have the the time to do that but

308
00:12:01,030 --> 00:11:57,279
i think

309
00:12:03,750 --> 00:12:01,040
space is very important um you know

310
00:12:05,750 --> 00:12:03,760
technology today relies on it and i

311
00:12:06,870 --> 00:12:05,760
think we really need to protect

312
00:12:09,509 --> 00:12:06,880
the uh

313
00:12:11,509 --> 00:12:09,519

the environment that our satellites

314

00:12:13,509 --> 00:12:11,519

fly in and

315

00:12:15,750 --> 00:12:13,519

you know by not creating any more debris

316

00:12:17,990 --> 00:12:15,760

and you know potentially looking at ways

317

00:12:19,750 --> 00:12:18,000

to reduce the debris that currently

318

00:12:22,470 --> 00:12:19,760

exists because that is such a critical

319

00:12:23,430 --> 00:12:22,480

capability uh for our nation and for the

320

00:12:25,829 --> 00:12:23,440

world

321

00:12:27,990 --> 00:12:25,839

the gentleman from virginia mr beyer

322

00:12:29,990 --> 00:12:28,000

thank you mr chairman and uh commander

323

00:12:32,389 --> 00:12:30,000

and doctor thank you so much for your

324

00:12:34,710 --> 00:12:32,399

heroic service for stretching our

325

00:12:36,310 --> 00:12:34,720

imagination and all of our science we

326

00:12:38,230 --> 00:12:36,320

have a complicated relationship with

327

00:12:40,230 --> 00:12:38,240

russia right now difficult geolo

328

00:12:42,310 --> 00:12:40,240

political situation how is it going with

329

00:12:44,230 --> 00:12:42,320

your russian colleagues and do you share

330

00:12:52,310 --> 00:12:44,240

all of your data with them and are they

331

00:12:56,710 --> 00:12:54,470

yeah so you know russia's really been a

332

00:12:58,230 --> 00:12:56,720

great partner uh for us on the space

333

00:13:01,110 --> 00:12:58,240

station and that's one of the things

334

00:13:03,590 --> 00:13:01,120

that um is great about this program uh

335

00:13:06,629 --> 00:13:03,600

you know besides the the research value

336

00:13:08,629 --> 00:13:06,639

and the you know the exploration um

337

00:13:10,470 --> 00:13:08,639

capability it provides

338

00:13:12,470 --> 00:13:10,480

uh you know the international

339

00:13:15,110 --> 00:13:12,480

partnership and the uh

340

00:13:17,269 --> 00:13:15,120

uh you know providing a place and a uh

341

00:13:19,350 --> 00:13:17,279

and goals and

342

00:13:21,110 --> 00:13:19,360

you know a program for us to work on

343

00:13:22,389 --> 00:13:21,120

jointly with other nations has been

344

00:13:24,069 --> 00:13:22,399

really one of the

345

00:13:27,590 --> 00:13:24,079

you know the shining

346

00:13:30,389 --> 00:13:27,600

uh points of this uh space station you

347

00:13:32,949 --> 00:13:30,399

know relationship uh that we've had as

348

00:13:35,829 --> 00:13:32,959

far as the cosmonauts and them

349

00:13:38,870 --> 00:13:35,839

specifically you know we rely on each

350

00:13:40,790 --> 00:13:38,880

other for our lives and you know we have

351
00:13:42,949 --> 00:13:40,800
to count on one another whether it's you

352
00:13:45,030 --> 00:13:42,959
know them counting or us on us us

353
00:13:46,629 --> 00:13:45,040
counting on them our other international

354
00:13:47,590 --> 00:13:46,639
partners so

355
00:13:50,949 --> 00:13:47,600
you know

356
00:13:53,829 --> 00:13:50,959
any difficulties that are and conflict

357
00:13:55,910 --> 00:13:53,839
that our country's experience

358
00:13:57,910 --> 00:13:55,920
is something that you know although we

359
00:13:59,670 --> 00:13:57,920
recognize that there's that stuff goes

360
00:14:02,389 --> 00:13:59,680
on and occasionally we talk about it it

361
00:14:04,069 --> 00:14:02,399
doesn't affect our relationship up here

362
00:14:05,990 --> 00:14:04,079
because you know we're all professionals

363
00:14:08,389 --> 00:14:06,000

we understand the reality of you know

364

00:14:10,150 --> 00:14:08,399

we're having to rely on one another i'll

365

00:14:12,310 --> 00:14:10,160

be up here with uh

366

00:14:13,509 --> 00:14:12,320

you know when these guys leave here next

367

00:14:16,069 --> 00:14:13,519

week

368

00:14:18,230 --> 00:14:16,079

i'll be up here with two cosmonauts for

369

00:14:21,030 --> 00:14:18,240

you know five days i was up here as the

370

00:14:21,910 --> 00:14:21,040

only uh with two russian guys for six

371

00:14:23,750 --> 00:14:21,920

weeks

372

00:14:25,269 --> 00:14:23,760

in the summer and if there was something

373

00:14:27,350 --> 00:14:25,279

that was to happen to me any kind of

374

00:14:29,430 --> 00:14:27,360

medical emergency those guys would be my

375

00:14:31,990 --> 00:14:29,440

doctor i mean i have to really

376

00:14:34,230 --> 00:14:32,000

count on them from my my life and

377

00:14:36,230 --> 00:14:34,240

you know vice versa so you know we have

378

00:14:38,389 --> 00:14:36,240

a great relationship and i think that

379

00:14:39,990 --> 00:14:38,399

the international aspect of this program

380

00:14:40,710 --> 00:14:40,000

has really been one of the highlights of

381

00:14:42,790 --> 00:14:40,720

it

382

00:14:48,629 --> 00:14:42,800

the gentleman from johnson space center

383

00:14:52,310 --> 00:14:50,949

this is dr brian babbitt and you and i

384

00:14:54,629 --> 00:14:52,320

met

385

00:14:57,670 --> 00:14:54,639

scott just a few weeks before you

386

00:15:00,790 --> 00:14:57,680

launched we had a great visit at johnson

387

00:15:01,829 --> 00:15:00,800

space center i got to talk with dr jeff

388

00:15:04,389 --> 00:15:01,839

davis

389

00:15:06,710 --> 00:15:04,399

uh who was doing some of the experiments

390

00:15:09,189 --> 00:15:06,720

and uh the comparisons between you and

391

00:15:10,389 --> 00:15:09,199

your your brother mark and i am a

392

00:15:13,670 --> 00:15:10,399

dentist

393

00:15:15,990 --> 00:15:13,680

and i try to uh i still have a great

394

00:15:17,509 --> 00:15:16,000

interest in my my my profession and i

395

00:15:19,829 --> 00:15:17,519

wanted to find out

396

00:15:23,829 --> 00:15:19,839

uh i know your your partner just wanted

397

00:15:26,389 --> 00:15:23,839

to thank him too as well dr lundgren um

398

00:15:28,310 --> 00:15:26,399

lindgren i appreciate your service

399

00:15:30,310 --> 00:15:28,320

i wanted to ask you

400

00:15:31,990 --> 00:15:30,320

both of you what your oral health

401
00:15:34,629 --> 00:15:32,000
situation is

402
00:15:37,670 --> 00:15:34,639
and also your general health

403
00:15:40,230 --> 00:15:37,680
from your long-term exposure to uh to

404
00:15:42,629 --> 00:15:40,240
weightlessness and zero gravity and have

405
00:15:44,629 --> 00:15:42,639
you had any uh situations where you've

406
00:15:47,430 --> 00:15:44,639
had a problem there and do you have any

407
00:15:55,829 --> 00:15:47,440
long-term uh concerns about that and

408
00:15:59,030 --> 00:15:58,310
well thank you for the question sir um

409
00:16:01,509 --> 00:15:59,040
you know

410
00:16:03,509 --> 00:16:01,519
the the uh the philosophy of our medical

411
00:16:05,590 --> 00:16:03,519
care system is really one of prevention

412
00:16:08,470 --> 00:16:05,600
and identifying uh the healthiest people

413
00:16:09,829 --> 00:16:08,480

possible um to select into the astronaut

414

00:16:11,990 --> 00:16:09,839

office

415

00:16:14,629 --> 00:16:12,000

to maintain their health uh at the

416

00:16:16,949 --> 00:16:14,639

highest levels in preparation for flight

417

00:16:18,710 --> 00:16:16,959

it's it's expensive to uh of course to

418

00:16:20,790 --> 00:16:18,720

bring a lot of tools and

419

00:16:22,470 --> 00:16:20,800

equipment up to the space station

420

00:16:25,350 --> 00:16:22,480

so we have we do have a medical

421

00:16:27,269 --> 00:16:25,360

capability up here uh both medical and

422

00:16:29,189 --> 00:16:27,279

and uh dentistry capability but it's

423

00:16:31,430 --> 00:16:29,199

fairly limited and so

424

00:16:32,790 --> 00:16:31,440

um because of our proximity to the earth

425

00:16:35,430 --> 00:16:32,800

if we really had any significant

426

00:16:38,230 --> 00:16:35,440

emergencies uh it's always

427

00:16:40,310 --> 00:16:38,240

um most desirable to to get the affected

428

00:16:41,829 --> 00:16:40,320

crew member uh evacuated back to the

429

00:16:43,430 --> 00:16:41,839

earth now this is something of course

430

00:16:45,030 --> 00:16:43,440

that uh we're gonna have to really think

431

00:16:46,790 --> 00:16:45,040

about as we start

432

00:16:48,870 --> 00:16:46,800

uh venturing deeper into our solar

433

00:16:50,949 --> 00:16:48,880

system a trip to mars is is not gonna

434

00:16:54,069 --> 00:16:50,959

have the luxury of a quick evacuation

435

00:16:55,110 --> 00:16:54,079

and so we will have to um identify

436

00:16:57,350 --> 00:16:55,120

uh

437

00:16:59,670 --> 00:16:57,360

a more robust medical care and dentistry

438

00:17:01,509 --> 00:16:59,680

care program so i think for both of us

439

00:17:03,509 --> 00:17:01,519

and really for all of us here on the

440

00:17:05,350 --> 00:17:03,519

space station are

441

00:17:07,429 --> 00:17:05,360

we we're in excellent health when we

442

00:17:09,350 --> 00:17:07,439

launch and we try to maintain that level

443

00:17:11,669 --> 00:17:09,360

of health up here with just good

444

00:17:14,710 --> 00:17:11,679

preventive practices hygiene

445

00:17:16,470 --> 00:17:14,720

oral hygiene and and then also counter

446

00:17:18,150 --> 00:17:16,480

measures including exercise and we're

447

00:17:20,870 --> 00:17:18,160

actually standing right next to our

448

00:17:23,909 --> 00:17:20,880

exercise bike we have a treadmill and a

449

00:17:27,029 --> 00:17:23,919

a resistance exercise machine um in no

450

00:17:28,870 --> 00:17:27,039

in one of our other modules and and and

451
00:17:30,310 --> 00:17:28,880
those are critically important to our

452
00:17:31,750 --> 00:17:30,320
our long-term health so that when we

453
00:17:34,470 --> 00:17:31,760
turn back to the earth that we've

454
00:17:35,909 --> 00:17:34,480
maintained our bone density and strength

455
00:17:37,350 --> 00:17:35,919
our muscle strength

456
00:17:40,789 --> 00:17:37,360
and

457
00:17:42,549 --> 00:17:40,799
those things are going to be very

458
00:17:44,630 --> 00:17:42,559
important for a long duration

459
00:17:46,230 --> 00:17:44,640
mission as well i regret we only have

460
00:17:47,590 --> 00:17:46,240
time for one more question quick

461
00:17:50,150 --> 00:17:47,600
question and that goes to the gentleman

462
00:17:52,070 --> 00:17:50,160
from colorado mr promoter thank you and

463
00:17:53,990 --> 00:17:52,080

gentlemen thank you for your service to

464

00:17:57,029 --> 00:17:54,000

the nation and to the future

465

00:17:59,350 --> 00:17:57,039

and my question is and i'm very happy dr

466

00:18:02,150 --> 00:17:59,360

lindgren you've got so many degrees from

467

00:18:03,990 --> 00:18:02,160

institutions in colorado my question we

468

00:18:06,549 --> 00:18:04,000

heard in a panel

469

00:18:09,510 --> 00:18:06,559

a couple weeks ago that the planets line

470

00:18:11,190 --> 00:18:09,520

up in 2033 that's the best time to get

471

00:18:13,430 --> 00:18:11,200

our astronauts

472

00:18:21,270 --> 00:18:13,440

to mars do you guys think that's

473

00:18:27,350 --> 00:18:23,669

well i think um

474

00:18:29,110 --> 00:18:27,360

i personally think it's feasible um

475

00:18:31,430 --> 00:18:29,120

you know there's still things we need to

476

00:18:34,150 --> 00:18:31,440

learn but i think we've learned a lot uh

477

00:18:35,990 --> 00:18:34,160

from this space station uh and our

478

00:18:38,950 --> 00:18:36,000

experience in space

479

00:18:41,110 --> 00:18:38,960

and i think um you know the long pole in

480

00:18:42,789 --> 00:18:41,120

our in the tent so to speak for going to

481

00:18:45,029 --> 00:18:42,799

mars is the uh

482

00:18:47,270 --> 00:18:45,039

you know the support of uh you know the

483

00:18:49,270 --> 00:18:47,280

nation the support of the support of our

484

00:18:51,029 --> 00:18:49,280

uh representatives and government and of

485

00:18:52,710 --> 00:18:51,039

course the money i mean it's expensive

486

00:18:54,789 --> 00:18:52,720

and we have you know

487

00:18:55,590 --> 00:18:54,799

different priorities but i think it's a

488

00:18:57,029 --> 00:18:55,600

trip

489

00:18:58,950 --> 00:18:57,039

that is uh

490

00:19:00,870 --> 00:18:58,960

you know is worth the investment i think

491

00:19:05,029 --> 00:19:00,880

there are

492

00:19:07,669 --> 00:19:05,039

intangible we get from investing in

493

00:19:09,350 --> 00:19:07,679

space flight and i think mars is a

494

00:19:12,150 --> 00:19:09,360

you know a great goal for us and i

495

00:19:13,029 --> 00:19:12,160

definitely think it's achievable

496

00:19:15,590 --> 00:19:13,039

uh

497

00:19:17,430 --> 00:19:15,600

captain kelly and dr linden were out of

498

00:19:19,590 --> 00:19:17,440

time but we appreciate the 20 minutes

499

00:19:21,669 --> 00:19:19,600

you have spent with us today

500

00:19:24,230 --> 00:19:21,679

we certainly wish you well and look

501
00:19:31,110 --> 00:19:24,240
forward to your safe return to earth

502
00:19:38,230 --> 00:19:33,430
thank you so much

503
00:19:39,750 --> 00:19:38,240
we really appreciate the opportunity to

504
00:19:41,830 --> 00:19:39,760
speak with you all

505
00:19:49,029 --> 00:19:41,840
and we also wanted to wish congresswoman

506
00:19:53,350 --> 00:19:50,630
station this is houston acr that

507
00:19:54,789 --> 00:19:53,360
concludes the event thank you

508
00:19:56,789 --> 00:19:54,799
thank you chairman smith and committee

509
00:19:58,710 --> 00:19:56,799
members station we're now resuming