



1
00:00:07,430 --> 00:00:04,630
jscpao this is houston please call

2
00:00:09,990 --> 00:00:07,440
station for a voice check

3
00:00:13,430 --> 00:00:10,000
station this is jscpao how do you hear

4
00:00:19,670 --> 00:00:17,349
hello we hear you loud and clear

5
00:00:21,590 --> 00:00:19,680
awesome okay so first we're going to go

6
00:00:22,950 --> 00:00:21,600
out to the social media followers who

7
00:00:24,790 --> 00:00:22,960
are at

8
00:00:26,710 --> 00:00:24,800
the kennedy space center in florida for

9
00:00:33,670 --> 00:00:26,720
the launch of nasa's radiation belt

10
00:00:39,350 --> 00:00:37,030
hi joe this is uh ranz adams at ksc

11
00:00:40,709 --> 00:00:39,360
twitter handle at medic rans

12
00:00:42,389 --> 00:00:40,719
i was wondering how do you cope with

13
00:00:44,950 --> 00:00:42,399

being away from your family for such a

14

00:00:46,790 --> 00:00:44,960

long period of time

15

00:00:48,389 --> 00:00:46,800

long duration iss crew members have said

16

00:00:49,350 --> 00:00:48,399

how isolating it could be aboard the

17

00:00:50,790 --> 00:00:49,360

station

18

00:00:55,189 --> 00:00:50,800

what keeps you going and what keeps your

19

00:00:59,990 --> 00:00:57,590

well don't tell my family but you know i

20

00:01:02,389 --> 00:01:00,000

don't feel too isolated up here you know

21

00:01:04,149 --> 00:01:02,399

we're talking to mission control all day

22

00:01:05,990 --> 00:01:04,159

long they get to see us and we have a

23

00:01:07,990 --> 00:01:06,000

lot of communication there

24

00:01:10,149 --> 00:01:08,000

but with my family

25

00:01:12,630 --> 00:01:10,159

we speak every week on a video

26

00:01:14,789 --> 00:01:12,640

conference so we see each other often i

27

00:01:16,550 --> 00:01:14,799

also have the telephone so i can call if

28

00:01:18,390 --> 00:01:16,560

i have to we have email

29

00:01:20,310 --> 00:01:18,400

so nasa's done a lot to keep us in

30

00:01:21,749 --> 00:01:20,320

communication with family and friends so

31

00:01:23,030 --> 00:01:21,759

it's really

32

00:01:24,310 --> 00:01:23,040

not too bad at all you know i was a

33

00:01:26,789 --> 00:01:24,320

peace corps volunteer and i live

34

00:01:29,510 --> 00:01:26,799

somewhere without electricity and i felt

35

00:01:32,230 --> 00:01:29,520

a lot more isolated there than i do now

36

00:01:34,390 --> 00:01:32,240

and looking out the window is motivation

37

00:01:40,950 --> 00:01:34,400

to uh to keep to stay up here and just

38

00:01:45,350 --> 00:01:43,030

this is dave higgins at dave higgins one

39

00:01:47,990 --> 00:01:45,360

twitter handle this question's for suny

40

00:01:49,910 --> 00:01:48,000

are night launches visible from the iss

41

00:01:51,190 --> 00:01:49,920

and will the iss be in a position to

42

00:01:56,469 --> 00:01:51,200

look for the friday launch of the

43

00:01:59,510 --> 00:01:57,990

well launches are visible but you have

44

00:02:00,950 --> 00:01:59,520

to be at the right place at the right

45

00:02:03,830 --> 00:02:00,960

time because you know we're going pretty

46

00:02:08,229 --> 00:02:03,840

fast to 17 500 miles an hour or so and

47

00:02:09,910 --> 00:02:08,239

so we zip zip past places pretty quickly

48

00:02:12,470 --> 00:02:09,920

we actually tried to look when the

49

00:02:14,150 --> 00:02:12,480

progress was launching out of baikonur

50

00:02:15,750 --> 00:02:14,160

and we saw the launch

51
00:02:16,790 --> 00:02:15,760
platform but we didn't get to see a

52
00:02:18,949 --> 00:02:16,800
launch

53
00:02:21,830 --> 00:02:18,959
not exactly sure where we're going to be

54
00:02:23,430 --> 00:02:21,840
on friday at that particular time but if

55
00:02:25,270 --> 00:02:23,440
we're anywhere near florida at night

56
00:02:27,030 --> 00:02:25,280
we'll be keeping our eyes open because

57
00:02:29,030 --> 00:02:27,040
nighttime viewing from this space

58
00:02:31,270 --> 00:02:29,040
station from the cupola is just

59
00:02:34,390 --> 00:02:31,280
incredible and you can really make out

60
00:02:36,790 --> 00:02:34,400
all sorts of uh cities and areas so i'm

61
00:02:38,790 --> 00:02:36,800
sure if there's xenon lights lighting up

62
00:02:45,270 --> 00:02:38,800
the launch pad at the cape and we're

63
00:02:49,110 --> 00:02:47,430

when i started the show pedrovaska the

64

00:02:52,710 --> 00:02:49,120

kennedy space center

65

00:02:52,720 --> 00:03:00,790

platos

66

00:03:00,800 --> 00:03:42,550

atlanta

67

00:03:47,190 --> 00:03:44,949

hi this is evie marome

68

00:03:49,509 --> 00:03:47,200

space girl evie with the u my question

69

00:03:52,070 --> 00:03:49,519

is for suny and i would like to know how

70

00:03:54,470 --> 00:03:52,080

much radiation does the iss crew receive

71

00:03:56,630 --> 00:03:54,480

during an average six month period

72

00:03:58,309 --> 00:03:56,640

mission compared to that same amount of

73

00:03:59,910 --> 00:03:58,319

time on earth and what kind of

74

00:04:00,789 --> 00:03:59,920

protection do you have in the event of a

75

00:04:05,670 --> 00:04:00,799

solar

76

00:04:10,710 --> 00:04:08,309

i don't know all the

77

00:04:12,390 --> 00:04:10,720

exact numbers but

78

00:04:14,789 --> 00:04:12,400

you know a fact that's thrown out there

79

00:04:17,590 --> 00:04:14,799

is it's about like 10 times the amount

80

00:04:19,349 --> 00:04:17,600

that we get on earth per day

81

00:04:21,110 --> 00:04:19,359

so it's a pretty high amount of

82

00:04:22,230 --> 00:04:21,120

radiation that we get while we're up

83

00:04:23,430 --> 00:04:22,240

here

84

00:04:25,990 --> 00:04:23,440

however

85

00:04:28,469 --> 00:04:26,000

we've got radiation covering around the

86

00:04:30,710 --> 00:04:28,479

space station we wear dosimeters all the

87

00:04:33,430 --> 00:04:30,720

time in fact we have them for when we go

88

00:04:35,270 --> 00:04:33,440

out on spacewalks as well to see

89

00:04:36,790 --> 00:04:35,280

if we get any additional radiation

90

00:04:38,790 --> 00:04:36,800

through the spacesuit

91

00:04:40,870 --> 00:04:38,800

and so it's monitored pretty well all of

92

00:04:43,030 --> 00:04:40,880

the modules in the space station also

93

00:04:45,110 --> 00:04:43,040

have radiation monitors and that

94

00:04:47,110 --> 00:04:45,120

information gets sent back down to the

95

00:04:49,110 --> 00:04:47,120

ground and also our dosimeters when we

96

00:04:52,230 --> 00:04:49,120

come back home and so they can get a

97

00:04:54,870 --> 00:04:52,240

good idea of exactly how much radiation

98

00:04:57,909 --> 00:04:54,880

we get and yeah we do get warnings if

99

00:05:00,310 --> 00:04:57,919

there is some type of solar activity or

100

00:05:02,310 --> 00:05:00,320

high radiation event and if that's the

101
00:05:04,710 --> 00:05:02,320
case then we'll go to a part of the

102
00:05:06,629 --> 00:05:04,720
station that's a little bit more

103
00:05:12,310 --> 00:05:06,639
sheltered and stuff to prevent us from

104
00:05:16,950 --> 00:05:14,870
hi this is rena warren arena w on

105
00:05:18,469 --> 00:05:16,960
twitter uh this question is for joe

106
00:05:19,830 --> 00:05:18,479
there are so many nasa developed

107
00:05:22,390 --> 00:05:19,840
technologies that we use in everyday

108
00:05:24,710 --> 00:05:22,400
life what if anything is in use on earth

109
00:05:27,350 --> 00:05:24,720
that came from an experiment on the iss

110
00:05:28,550 --> 00:05:27,360
or technology developed for the iss and

111
00:05:31,270 --> 00:05:28,560
in the end what do you think will be the

112
00:05:35,830 --> 00:05:31,280
biggest benefit to mankind from the iss

113
00:05:39,270 --> 00:05:37,270

well that's a great question and yeah

114

00:05:41,270 --> 00:05:39,280

over the years nasa has developed all

115

00:05:44,629 --> 00:05:41,280

kinds of technologies that we use every

116

00:05:46,310 --> 00:05:44,639

day and that continues today

117

00:05:48,150 --> 00:05:46,320

while we've since we've been up here

118

00:05:50,950 --> 00:05:48,160

sunny just yesterday was working on a

119

00:05:53,110 --> 00:05:50,960

project with fire which is always fun

120

00:05:55,110 --> 00:05:53,120

and what they can get from that is we

121

00:05:57,029 --> 00:05:55,120

can learn the properties of fire and

122

00:05:58,870 --> 00:05:57,039

they can improve the models that we use

123

00:06:00,790 --> 00:05:58,880

on the ground so there's a lot that's

124

00:06:02,950 --> 00:06:00,800

happening uh working with fluids and how

125

00:06:05,430 --> 00:06:02,960

they uh how they move in different types

126
00:06:06,710 --> 00:06:05,440
of tanks so we're continuously improving

127
00:06:08,150 --> 00:06:06,720
that and

128
00:06:10,710 --> 00:06:08,160
i would invite all of you to go to the

129
00:06:12,790 --> 00:06:10,720
nasa website to the spinoff section and

130
00:06:14,710 --> 00:06:12,800
you can see everything that nasa has

131
00:06:16,390 --> 00:06:14,720
done and i can guarantee you'll find

132
00:06:17,990 --> 00:06:16,400
something that you use that is a

133
00:06:19,990 --> 00:06:18,000
spin-off from nasa

134
00:06:22,629 --> 00:06:20,000
and what we might find in the future

135
00:06:24,550 --> 00:06:22,639
what's cool now is the iss is a national

136
00:06:27,430 --> 00:06:24,560
lab so what that means is that in the

137
00:06:29,749 --> 00:06:27,440
future half the science we do will be

138
00:06:31,430 --> 00:06:29,759

proposed by scientists around the world

139

00:06:33,830 --> 00:06:31,440

and the other half will be done by nasa

140

00:06:35,990 --> 00:06:33,840

scientists so we can go out further past

141

00:06:37,270 --> 00:06:36,000

low earth orbit and what's cool about

142

00:06:38,710 --> 00:06:37,280

exploration is you don't know what

143

00:06:39,990 --> 00:06:38,720

you're going to find and that's what i'm

144

00:06:41,110 --> 00:06:40,000

excited about i think

145

00:06:47,990 --> 00:06:41,120

some cool things are going to happen

146

00:06:51,830 --> 00:06:49,430

thank you joe and sunny now we're going

147

00:06:53,589 --> 00:06:51,840

to go to uh social media followers who

148

00:06:55,510 --> 00:06:53,599

are on our phone bridge they're calling

149

00:06:56,870 --> 00:06:55,520

from all over the world so callers on

150

00:06:58,710 --> 00:06:56,880

the phone will you please state your

151
00:07:01,589 --> 00:06:58,720
name and also where you're calling from

152
00:07:04,469 --> 00:07:01,599
let's go with number one laura

153
00:07:06,550 --> 00:07:04,479
this is laura garcia viedo i'm science

154
00:07:08,950 --> 00:07:06,560
worker on twitter and i'm calling from

155
00:07:11,749 --> 00:07:08,960
san carlos de bariloche patagonia in

156
00:07:14,070 --> 00:07:11,759
argentina this question is for sunni why

157
00:07:16,950 --> 00:07:14,080
is it important that human beings not

158
00:07:19,510 --> 00:07:16,960
just robots explore space for example

159
00:07:26,070 --> 00:07:19,520
mars do you live and work with many

160
00:07:29,189 --> 00:07:27,510
well laura as a matter of fact you could

161
00:07:31,909 --> 00:07:29,199
probably see robonaut right in front of

162
00:07:34,309 --> 00:07:31,919
us and today we brought him out to

163
00:07:36,550 --> 00:07:34,319

try him out and see how he could do for

164

00:07:37,510 --> 00:07:36,560

some of the simple tasks as we're trying

165

00:07:38,950 --> 00:07:37,520

to

166

00:07:41,029 --> 00:07:38,960

actually perfect

167

00:07:43,670 --> 00:07:41,039

robots so that they can actually use

168

00:07:45,909 --> 00:07:43,680

their hands his hands are actually like

169

00:07:48,070 --> 00:07:45,919

our hands and so he's going to trying to

170

00:07:49,670 --> 00:07:48,080

do some fine dextrous things and then in

171

00:07:51,749 --> 00:07:49,680

the future we can potentially use

172

00:07:53,990 --> 00:07:51,759

something like this outside to do tasks

173

00:07:55,830 --> 00:07:54,000

that right now we have to do so yeah

174

00:07:58,070 --> 00:07:55,840

humans have to be in space at this

175

00:08:00,070 --> 00:07:58,080

moment in time to do stuff like space

176

00:08:01,589 --> 00:08:00,080

walks and do some of the fine

177

00:08:04,550 --> 00:08:01,599

manipulation stuff if we're going to

178

00:08:07,189 --> 00:08:04,560

change uh boxes or electronics equipment

179

00:08:08,629 --> 00:08:07,199

outside and speaking of exploration you

180

00:08:10,150 --> 00:08:08,639

know think about

181

00:08:12,230 --> 00:08:10,160

you know the rovers that are on mars

182

00:08:14,309 --> 00:08:12,240

that's just incredible that curiosity is

183

00:08:16,390 --> 00:08:14,319

there and doing its thing

184

00:08:18,469 --> 00:08:16,400

but if it runs across something that

185

00:08:20,150 --> 00:08:18,479

maybe we hadn't planned it's going to

186

00:08:21,909 --> 00:08:20,160

mean people that back on earth are going

187

00:08:23,749 --> 00:08:21,919

to have to sit down

188

00:08:25,990 --> 00:08:23,759

think about all the pros and cons to

189

00:08:27,990 --> 00:08:26,000

make a decision now if there was a human

190

00:08:29,990 --> 00:08:28,000

there on mars they could use their best

191

00:08:32,070 --> 00:08:30,000

judgment engineering judgment scientific

192

00:08:34,149 --> 00:08:32,080

judgment medical judgment to make that

193

00:08:36,630 --> 00:08:34,159

decision pretty quick and things could

194

00:08:39,110 --> 00:08:36,640

happen a lot more rapid so i think

195

00:08:41,670 --> 00:08:39,120

humans are definitely needed for

196

00:08:43,829 --> 00:08:41,680

further of exploration and to fight to

197

00:08:45,670 --> 00:08:43,839

find things that we didn't even expect

198

00:08:46,790 --> 00:08:45,680

machines usually do things that we

199

00:08:48,389 --> 00:08:46,800

expect

200

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

it's more the human being that's fi

201
00:08:54,949 --> 00:08:50,399
that's curious and to find the next

202
00:08:57,910 --> 00:08:55,670
hi

203
00:09:00,070 --> 00:08:57,920
my name is gloria lloyd i'm also gloria

204
00:09:01,910 --> 00:09:00,080
lloyd on twitter and i'm calling from

205
00:09:03,910 --> 00:09:01,920
raleigh north carolina

206
00:09:05,670 --> 00:09:03,920
my question is for joe

207
00:09:07,910 --> 00:09:05,680
and other than your family what is the

208
00:09:09,670 --> 00:09:07,920
thing that you miss most from earth what

209
00:09:15,750 --> 00:09:09,680
are you most looking forward to when you

210
00:09:19,750 --> 00:09:18,070
well i think the after being here for a

211
00:09:22,150 --> 00:09:19,760
little more than three months and i have

212
00:09:23,430 --> 00:09:22,160
one more to go the one thing that i miss

213
00:09:25,590 --> 00:09:23,440

and i'm looking forward to is actually

214

00:09:28,389 --> 00:09:25,600

the climate back on earth you know we

215

00:09:29,910 --> 00:09:28,399

live in this fairly sterile environment

216

00:09:31,750 --> 00:09:29,920

which is very comfortable if you live in

217

00:09:33,190 --> 00:09:31,760

houston this time of year but i look

218

00:09:35,670 --> 00:09:33,200

forward to getting back and feeling that

219

00:09:37,670 --> 00:09:35,680

sun on my face sitting by pool working

220

00:09:39,269 --> 00:09:37,680

on my tan a little bit

221

00:09:41,269 --> 00:09:39,279

you know just feeling the sun feeling

222

00:09:43,590 --> 00:09:41,279

the wind feeling the rain those are

223

00:09:45,509 --> 00:09:43,600

things that we miss up here and i don't

224

00:09:49,590 --> 00:09:45,519

know maybe a barbecue bacon cheeseburger

225

00:09:53,990 --> 00:09:51,590

hi this is lindsay newton calling from

226

00:09:55,670 --> 00:09:54,000

liverpool um in england um and my

227

00:09:57,269 --> 00:09:55,680

questions for sunny

228

00:09:59,030 --> 00:09:57,279

i know that you've got spiders on board

229

00:10:04,230 --> 00:09:59,040

at the moment but what other creatures

230

00:10:07,190 --> 00:10:05,590

yeah you're absolutely right we have two

231

00:10:08,790 --> 00:10:07,200

spiders in their habitats and we've been

232

00:10:10,630 --> 00:10:08,800

watching them uh

233

00:10:12,550 --> 00:10:10,640

prey on the fruit flies it's been pretty

234

00:10:14,230 --> 00:10:12,560

interesting um in the past we've

235

00:10:16,470 --> 00:10:14,240

actually had some other spiders and i

236

00:10:18,550 --> 00:10:16,480

think that was the first time i've was

237

00:10:21,269 --> 00:10:18,560

able to answer a question that i got

238

00:10:23,509 --> 00:10:21,279

from a fifth grader about how do spiders

239

00:10:25,670 --> 00:10:23,519

make webs in space and that's actually

240

00:10:27,910 --> 00:10:25,680

uh was a pretty interesting thing for us

241

00:10:30,710 --> 00:10:27,920

to watch real time here and earlier

242

00:10:32,069 --> 00:10:30,720

previously they they pretty much adapt

243

00:10:34,870 --> 00:10:32,079

other animals that we've had we've had

244

00:10:36,870 --> 00:10:34,880

mice up here before

245

00:10:38,389 --> 00:10:36,880

not too long ago

246

00:10:39,829 --> 00:10:38,399

on the space station i think those are

247

00:10:42,150 --> 00:10:39,839

all the animals we've had but in the

248

00:10:44,550 --> 00:10:42,160

future we're going to have fish

249

00:10:47,110 --> 00:10:44,560

our other crewmate aki hoshide from jaxa

250

00:10:49,430 --> 00:10:47,120

from japan has been getting the aquarium

251

00:10:50,949 --> 00:10:49,440

ready to go and i think on the net

252

00:10:52,389 --> 00:10:50,959

within the by the end of the year we

253

00:10:57,509 --> 00:10:52,399

should have some fish up here to put in

254

00:11:01,829 --> 00:10:59,590

hi my name is aiden callahan i'm calling

255

00:11:02,870 --> 00:11:01,839

from boston massachusetts my question is

256

00:11:04,790 --> 00:11:02,880

for joe

257

00:11:06,550 --> 00:11:04,800

would having a permanent low earth orbit

258

00:11:11,829 --> 00:11:06,560

station be feasible and how could we

259

00:11:15,430 --> 00:11:13,750

yeah i definitely think it's feasible

260

00:11:17,509 --> 00:11:15,440

and you could almost look at the space

261

00:11:19,509 --> 00:11:17,519

station we're in now and call this a

262

00:11:22,150 --> 00:11:19,519

permanent structure it's been here for

263

00:11:23,670 --> 00:11:22,160

the past almost 12 years and we have

264

00:11:26,389 --> 00:11:23,680

agreements in place to keep it here

265

00:11:28,150 --> 00:11:26,399

until 2020 so we're looking at a 20-year

266

00:11:30,310 --> 00:11:28,160

period of having the space station so i

267

00:11:32,870 --> 00:11:30,320

think we've proven that you can have a

268

00:11:35,030 --> 00:11:32,880

structure in low-earth orbit for a long

269

00:11:36,069 --> 00:11:35,040

period of time and it may continue even

270

00:11:38,310 --> 00:11:36,079

longer

271

00:11:39,750 --> 00:11:38,320

and what we really need to keep this one

272

00:11:41,829 --> 00:11:39,760

going or future

273

00:11:44,230 --> 00:11:41,839

stations in orbit is the support of the

274

00:11:45,670 --> 00:11:44,240

community um you know this is an

275

00:11:47,670 --> 00:11:45,680

international space station it's not

276

00:11:49,110 --> 00:11:47,680

just one country but when you get the

277

00:11:51,269 --> 00:11:49,120

whole earth working together it's

278

00:11:52,790 --> 00:11:51,279

amazing what we can do and i wouldn't be

279

00:11:54,949 --> 00:11:52,800

surprised if a lot more people in the

280

00:11:58,230 --> 00:11:54,959

future are orbiting the earth just like

281

00:12:02,870 --> 00:12:00,790

this is uh james gomez at gomez james

282

00:12:04,790 --> 00:12:02,880

i'm calling from aliso viejo california

283

00:12:06,949 --> 00:12:04,800

california sonny what's been the most

284

00:12:11,750 --> 00:12:06,959

memorable event so far of your current

285

00:12:14,550 --> 00:12:13,509

um i think uh

286

00:12:15,910 --> 00:12:14,560

probably

287

00:12:18,790 --> 00:12:15,920

you know coming up here on a russian

288

00:12:21,910 --> 00:12:18,800

spacecraft the soyuz was pretty unique

289

00:12:24,150 --> 00:12:21,920

uh last time i flew up here was on a u.s

290

00:12:25,750 --> 00:12:24,160

space shuttle and that was just amazing

291

00:12:27,829 --> 00:12:25,760

you know first time going to space it's

292

00:12:29,829 --> 00:12:27,839

just awesome and the rocket's huge and

293

00:12:31,990 --> 00:12:29,839

it makes a lot of noise but the soyuz is

294

00:12:33,430 --> 00:12:32,000

something something different and

295

00:12:34,949 --> 00:12:33,440

in particular working with our

296

00:12:36,710 --> 00:12:34,959

international partners our russian

297

00:12:38,790 --> 00:12:36,720

partners and understanding learning

298

00:12:40,790 --> 00:12:38,800

about the history of that program and

299

00:12:43,430 --> 00:12:40,800

then you know coming here and docking to

300

00:12:46,069 --> 00:12:43,440

the international station that that part

301
00:12:48,629 --> 00:12:46,079
has been really awesome um but you know

302
00:12:51,750 --> 00:12:48,639
parallel to that was when htv when joe

303
00:12:53,190 --> 00:12:51,760
and aki grabbed htv and docked that to

304
00:12:54,389 --> 00:12:53,200
the international space station and i

305
00:12:56,470 --> 00:12:54,399
think you're getting the gist of what

306
00:12:59,190 --> 00:12:56,480
i'm saying is when when anything new

307
00:13:01,430 --> 00:12:59,200
comes it's um it's always exciting we

308
00:13:03,670 --> 00:13:01,440
also had a progress that came up to the

309
00:13:05,750 --> 00:13:03,680
space station and it launched and got

310
00:13:08,069 --> 00:13:05,760
here within one day so that's a brand

311
00:13:09,590 --> 00:13:08,079
new flight profile so that's been all of

312
00:13:11,430 --> 00:13:09,600
that dynamic stuff's been really

313
00:13:13,190 --> 00:13:11,440

exciting and i'm not saying the science

314

00:13:15,990 --> 00:13:13,200

isn't either it's just we sort of get

315

00:13:17,990 --> 00:13:16,000

all ramped up for the the dynamic parts

316

00:13:19,750 --> 00:13:18,000

and so that makes it just a lot of fun

317

00:13:21,829 --> 00:13:19,760

to wake up the next day and see what's

318

00:13:24,629 --> 00:13:21,839

what's on the plate for for for what's

319

00:13:28,790 --> 00:13:27,030

uh hey guys my name is uh yesenia arroyo

320

00:13:30,870 --> 00:13:28,800

uh twitter handle yanasa seven i'm

321

00:13:33,110 --> 00:13:30,880

calling from orlando florida and uh this

322

00:13:34,949 --> 00:13:33,120

question is for joe how are astronauts

323

00:13:41,189 --> 00:13:34,959

dealing with phone loss have any new

324

00:13:45,829 --> 00:13:43,670

yeah bone loss and muscle atrophy is a

325

00:13:47,829 --> 00:13:45,839

big problem that we have up being up

326

00:13:49,189 --> 00:13:47,839

here for a long period of time but we've

327

00:13:51,829 --> 00:13:49,199

come a long way

328

00:13:53,910 --> 00:13:51,839

and so for the the muscles and the bone

329

00:13:54,790 --> 00:13:53,920

we exercise every day for about two

330

00:13:56,629 --> 00:13:54,800

hours

331

00:13:58,389 --> 00:13:56,639

part of it is on the stationary bicycle

332

00:14:00,550 --> 00:13:58,399

that we have here

333

00:14:02,470 --> 00:14:00,560

but we also have see look at that that's

334

00:14:04,150 --> 00:14:02,480

how good it is and we also have a

335

00:14:06,550 --> 00:14:04,160

machine called a red which is a

336

00:14:09,590 --> 00:14:06,560

resistive exercise device that feels

337

00:14:11,350 --> 00:14:09,600

just like a universal machine uh in any

338

00:14:13,590 --> 00:14:11,360

you know back home and we have a

339

00:14:16,550 --> 00:14:13,600

treadmill that we wear a harness so we

340

00:14:18,629 --> 00:14:16,560

can run on that and that impact also

341

00:14:20,230 --> 00:14:18,639

helps with reducing the bone loss so

342

00:14:22,150 --> 00:14:20,240

with those three things

343

00:14:23,990 --> 00:14:22,160

we've learned a lot about it

344

00:14:26,550 --> 00:14:24,000

we're also taking part in an experiment

345

00:14:28,550 --> 00:14:26,560

where we eat special diets to see if the

346

00:14:30,629 --> 00:14:28,560

foods that we eat if that can change

347

00:14:33,030 --> 00:14:30,639

what our bone loss is like so we've come

348

00:14:34,949 --> 00:14:33,040

a long way we have a lot to learn and

349

00:14:36,550 --> 00:14:34,959

what's neat is what we learn up here

350

00:14:38,790 --> 00:14:36,560

we're also going to be be able to use

351
00:14:40,069 --> 00:14:38,800
back home so there's a lot going on and

352
00:14:50,790 --> 00:14:40,079
there's always something new to learn

353
00:14:55,030 --> 00:14:52,949
next caller holly

354
00:14:57,030 --> 00:14:55,040
yes my name is i'm holly smart and i'm

355
00:14:58,870 --> 00:14:57,040
calling from lockport new york

356
00:15:00,790 --> 00:14:58,880
my question is may you both briefly

357
00:15:06,629 --> 00:15:00,800
share your thoughts on what the mars

358
00:15:10,310 --> 00:15:08,470
sure that was a pretty exciting day up

359
00:15:13,350 --> 00:15:10,320
here we actually got up a little bit

360
00:15:15,750 --> 00:15:13,360
early because it was about 5 30 our time

361
00:15:19,350 --> 00:15:15,760
gmt to to see what happened and we were

362
00:15:21,430 --> 00:15:19,360
anxiously watching nasa tv through our

363
00:15:23,350 --> 00:15:21,440

radio links here to to find out what

364

00:15:24,470 --> 00:15:23,360

happened and and i just think it was

365

00:15:25,590 --> 00:15:24,480

amazing

366

00:15:27,350 --> 00:15:25,600

i think you

367

00:15:30,470 --> 00:15:27,360

the whole public probably knows about

368

00:15:32,550 --> 00:15:30,480

the the landing profile and how it was

369

00:15:34,629 --> 00:15:32,560

how its entry file and it's pretty

370

00:15:37,030 --> 00:15:34,639

amazing you know brand new technology

371

00:15:39,110 --> 00:15:37,040

really creative ideas you know a great

372

00:15:40,870 --> 00:15:39,120

group of people out at jpl you know

373

00:15:42,629 --> 00:15:40,880

that's what's going to take us into the

374

00:15:44,710 --> 00:15:42,639

future and get us out of low earth orbit

375

00:15:47,110 --> 00:15:44,720

so to me i think it's the next step it

376

00:15:48,629 --> 00:15:47,120

was really awesome

377

00:15:51,269 --> 00:15:48,639

yeah and sunny hit it right on the head

378

00:15:54,069 --> 00:15:51,279

if you watched the landing you felt that

379

00:15:56,230 --> 00:15:54,079

excitement that was going on at jpl and

380

00:15:57,749 --> 00:15:56,240

so don't think that nasa isn't exciting

381

00:15:59,910 --> 00:15:57,759

and we're not doing a lot of neat things

382

00:16:02,389 --> 00:15:59,920

because we are and so that was just

383

00:16:04,389 --> 00:16:02,399

another milestone as part of the

384

00:16:05,990 --> 00:16:04,399

exploration and so i think when you have

385

00:16:08,790 --> 00:16:06,000

projects like that and then eventually

386

00:16:14,310 --> 00:16:08,800

having astronauts go to mars some really

387

00:16:18,949 --> 00:16:16,710

hi this is

388

00:16:21,189 --> 00:16:18,959

mexico my question is for joe

389

00:16:26,710 --> 00:16:21,199

how is breathable oxygen generated at

390

00:16:30,790 --> 00:16:28,389

so basically the oxygen that we're

391

00:16:33,030 --> 00:16:30,800

generating we have two systems one on

392

00:16:34,870 --> 00:16:33,040

the the u.s side of it and the other one

393

00:16:36,550 --> 00:16:34,880

on the russian segment and they both

394

00:16:39,430 --> 00:16:36,560

work the same where we're splitting

395

00:16:40,870 --> 00:16:39,440

water and from that you have hydrogen

396

00:16:42,550 --> 00:16:40,880

and oxygen

397

00:16:44,710 --> 00:16:42,560

we also have visiting vehicles that will

398

00:16:46,870 --> 00:16:44,720

come up and they can bring us oxygen and

399

00:16:49,269 --> 00:16:46,880

so we will uh also make it from those

400

00:16:51,670 --> 00:16:49,279

tanks and in case we had some kind of a

401
00:16:53,350 --> 00:16:51,680
situation where we couldn't uh make our

402
00:16:55,590 --> 00:16:53,360
own we have a couple of devices that we

403
00:16:57,749 --> 00:16:55,600
can go through a chemical reaction and

404
00:16:59,269 --> 00:16:57,759
produce oxygen so we're in good shape

405
00:17:01,509 --> 00:16:59,279
and with the way that we can recycle

406
00:17:05,429 --> 00:17:01,519
water now it's almost as if we have an

407
00:17:07,270 --> 00:17:05,439
endless supply that we can generate

408
00:17:08,549 --> 00:17:07,280
hi suny my name is andres almeida my

409
00:17:10,549 --> 00:17:08,559
favorite name is andreas david i'm

410
00:17:11,909 --> 00:17:10,559
calling from washington dc

411
00:17:13,429 --> 00:17:11,919
what other sorts of experiments are

412
00:17:20,630 --> 00:17:13,439
being conducted aboard the space station

413
00:17:25,189 --> 00:17:23,510

so like we alluded to earlier um we're

414

00:17:27,189 --> 00:17:25,199

doing a whole myriad of experiments on

415

00:17:29,350 --> 00:17:27,199

ourselves uh that's you know first and

416

00:17:30,710 --> 00:17:29,360

foremost like a biology experiments

417

00:17:33,029 --> 00:17:30,720

trying to find out what happens to the

418

00:17:36,070 --> 00:17:33,039

human body living here in space for a

419

00:17:39,590 --> 00:17:36,080

long period of time and joe touched on

420

00:17:41,830 --> 00:17:39,600

bone loss bone density muscle loss and

421

00:17:44,150 --> 00:17:41,840

density and also another experiment

422

00:17:46,070 --> 00:17:44,160

cardiac find out what is actually going

423

00:17:48,390 --> 00:17:46,080

on with your heart in space you know

424

00:17:49,909 --> 00:17:48,400

it's a muscle so it absolutely you know

425

00:17:51,510 --> 00:17:49,919

probably more than likely shrinks a

426

00:17:53,510 --> 00:17:51,520

little bit in space and so how is that

427

00:17:55,510 --> 00:17:53,520

all affecting uh the way we're doing

428

00:17:57,909 --> 00:17:55,520

stuff on ourselves also we're doing

429

00:18:01,110 --> 00:17:57,919

reaction type testing how does the body

430

00:18:03,029 --> 00:18:01,120

over time react may that might change

431

00:18:04,630 --> 00:18:03,039

the way we design control systems if

432

00:18:06,230 --> 00:18:04,640

we're in space for a long time going

433

00:18:08,710 --> 00:18:06,240

like to mars and maybe might have to

434

00:18:10,470 --> 00:18:08,720

make a control system that would uh be a

435

00:18:12,789 --> 00:18:10,480

little bit more applicable to it to be a

436

00:18:13,990 --> 00:18:12,799

changed reaction time but other things

437

00:18:15,350 --> 00:18:14,000

we're doing those are just things on

438

00:18:16,950 --> 00:18:15,360

ourselves and there's more than than

439

00:18:19,909 --> 00:18:16,960

what i'm saying but there's also like

440

00:18:21,590 --> 00:18:19,919

materials type stuff capillary flow

441

00:18:23,669 --> 00:18:21,600

the you know the burning fire

442

00:18:25,909 --> 00:18:23,679

experiments that i was talking about

443

00:18:27,909 --> 00:18:25,919

that joe was talking about um there's

444

00:18:30,310 --> 00:18:27,919

experiments that are going on outside

445

00:18:32,789 --> 00:18:30,320

with ams there's robonaut type of

446

00:18:34,710 --> 00:18:32,799

experiments so there's a ton of things

447

00:18:36,230 --> 00:18:34,720

also like i talked about earlier the you

448

00:18:37,830 --> 00:18:36,240

know the animals that we have up here

449

00:18:40,150 --> 00:18:37,840

the spiders the fish

450

00:18:42,710 --> 00:18:40,160

and you know tons of experiments from

451
00:18:44,710 --> 00:18:42,720
like joe said all over the world and so

452
00:18:46,150 --> 00:18:44,720
i mean too many even to talk about and

453
00:18:47,830 --> 00:18:46,160
like joe said on the nasa website

454
00:18:49,190 --> 00:18:47,840
there's probably a ton of them if you

455
00:18:51,750 --> 00:18:49,200
want to take a look and see what we're

456
00:18:53,510 --> 00:18:51,760
doing on a daily basis basis and i'm

457
00:18:55,190 --> 00:18:53,520
sort of surprised every day i wake up

458
00:18:56,549 --> 00:18:55,200
and i look at our schedule and there's

459
00:18:57,990 --> 00:18:56,559
something new on there that i've never

460
00:19:00,230 --> 00:18:58,000
done before so

461
00:19:01,909 --> 00:19:00,240
it's exciting to be up here and we we

462
00:19:05,909 --> 00:19:01,919
appreciate all the pis who are taking

463
00:19:10,070 --> 00:19:08,230

station this is jscpao thank you very

464

00:19:11,510 --> 00:19:10,080

much for all the wonderful answers you

465

00:19:14,070 --> 00:19:11,520

guys provided we were able to get

466

00:19:16,310 --> 00:19:14,080

through all of the callers and we have

467

00:19:18,070 --> 00:19:16,320

run out of time and as always

468

00:19:24,310 --> 00:19:18,080

we really appreciate everything you do

469

00:19:27,830 --> 00:19:26,549

thank you very much it's gone by quickly

470

00:19:30,150 --> 00:19:27,840

and thanks for joining us today it was

471

00:19:31,909 --> 00:19:30,160

fun talking to you all