



**SPACESTATION
LIVE**

1
00:00:08,310 --> 00:00:06,950
so scott kelly just under two weeks away

2
00:00:09,509 --> 00:00:08,320
from returning from his historic

3
00:00:11,669 --> 00:00:09,519
year-long stay on board the

4
00:00:12,870 --> 00:00:11,679
international space station and a lot of

5
00:00:14,789 --> 00:00:12,880
people are going to be down there on the

6
00:00:16,950 --> 00:00:14,799
ground to help out once he comes home

7
00:00:18,870 --> 00:00:16,960
and i'm joined now by one of those dr

8
00:00:20,790 --> 00:00:18,880
stephen gilmour who's the lead flight

9
00:00:23,109 --> 00:00:20,800
surgeon and has been for scott for his

10
00:00:24,630 --> 00:00:23,119
entire mission so dr gilmore first off

11
00:00:26,070 --> 00:00:24,640
thanks so much for joining me today it's

12
00:00:28,390 --> 00:00:26,080
always great to meet the people kind of

13
00:00:30,550 --> 00:00:28,400

behind the scenes making this all happen

14

00:00:32,950 --> 00:00:30,560

and if i can i want to jump right into

15

00:00:35,190 --> 00:00:32,960

it so the landing and kazakhstans are

16

00:00:36,709 --> 00:00:35,200

really dynamic or really interesting

17

00:00:39,030 --> 00:00:36,719

tell me a little bit about what that

18

00:00:39,990 --> 00:00:39,040

process is like on your end as a flight

19

00:00:41,510 --> 00:00:40,000

surgeon

20

00:00:43,750 --> 00:00:41,520

well thank you very much and it's a

21

00:00:45,670 --> 00:00:43,760

pleasure to be here

22

00:00:47,510 --> 00:00:45,680

i would describe it as the definition of

23

00:00:48,709 --> 00:00:47,520

a whirlwind tour

24

00:00:50,869 --> 00:00:48,719

we

25

00:00:53,670 --> 00:00:50,879

will be leaving about seven days before

26
00:00:55,110 --> 00:00:53,680
landing to go over to moscow and we'll

27
00:00:57,270 --> 00:00:55,120
meet with some of the

28
00:00:59,830 --> 00:00:57,280
support team there and coordinate with

29
00:01:02,310 --> 00:00:59,840
our russian colleagues who

30
00:01:04,149 --> 00:01:02,320
provide all the assets for landing and

31
00:01:06,469 --> 00:01:04,159
about three days before landing we

32
00:01:07,670 --> 00:01:06,479
travel with them to kazakhstan

33
00:01:11,109 --> 00:01:07,680
and

34
00:01:12,390 --> 00:01:11,119
get in the posture for deployment

35
00:01:14,310 --> 00:01:12,400
and uh

36
00:01:16,789 --> 00:01:14,320
on the day of the landing we split up

37
00:01:18,870 --> 00:01:16,799
into two teams there's a team that goes

38
00:01:21,030 --> 00:01:18,880

and supports um a possible landing at a

39

00:01:22,870 --> 00:01:21,040

ballistic site and then there's a larger

40

00:01:24,870 --> 00:01:22,880

team

41

00:01:27,670 --> 00:01:24,880

that goes to the primary landing site

42

00:01:29,990 --> 00:01:27,680

and i'll be in the team at the primary

43

00:01:32,310 --> 00:01:30,000

landing site and

44

00:01:34,789 --> 00:01:32,320

on the day of the landing we deploy into

45

00:01:36,310 --> 00:01:34,799

groups on uh the helicopters that are

46

00:01:38,550 --> 00:01:36,320

provided and

47

00:01:40,870 --> 00:01:38,560

fly out to the landing site and

48

00:01:43,270 --> 00:01:40,880

are there to receive the crew okay and

49

00:01:45,190 --> 00:01:43,280

so as a flight surgeon so there's a lot

50

00:01:46,950 --> 00:01:45,200

of folks there's the search and recovery

51
00:01:49,030 --> 00:01:46,960
folks there's a lot of people from you

52
00:01:50,870 --> 00:01:49,040
know the russian forces the nasa team as

53
00:01:52,550 --> 00:01:50,880
a flight surgeon what is your role once

54
00:01:55,030 --> 00:01:52,560
you're down on the ground and we have

55
00:01:57,670 --> 00:01:55,040
you know scott out of the capsule

56
00:02:00,709 --> 00:01:57,680
so we we do several things but our main

57
00:02:02,149 --> 00:02:00,719
responsibility there is to

58
00:02:05,190 --> 00:02:02,159
be looking out for the health and

59
00:02:07,270 --> 00:02:05,200
well-being of the crew member uh and so

60
00:02:09,910 --> 00:02:07,280
immediately after landing

61
00:02:11,589 --> 00:02:09,920
we're there with the team and

62
00:02:13,750 --> 00:02:11,599
we are typically there for the

63
00:02:14,869 --> 00:02:13,760

extraction of the crew members from the

64

00:02:16,790 --> 00:02:14,879

vehicle

65

00:02:18,070 --> 00:02:16,800

and from that point forward we're

66

00:02:21,350 --> 00:02:18,080

monitoring

67

00:02:23,830 --> 00:02:21,360

them checking out their vital signs

68

00:02:25,910 --> 00:02:23,840

they typically have a brief um

69

00:02:29,510 --> 00:02:25,920

period in chairs out in front of the

70

00:02:32,869 --> 00:02:31,270

question and answer stuff

71

00:02:34,630 --> 00:02:32,879

with some of the folks that are there

72

00:02:37,430 --> 00:02:34,640

and then after that

73

00:02:39,990 --> 00:02:37,440

they set up a medical tent and we take

74

00:02:41,030 --> 00:02:40,000

the crew members into there um again

75

00:02:43,750 --> 00:02:41,040

we're

76

00:02:45,350 --> 00:02:43,760

just making sure they're doing well

77

00:02:46,309 --> 00:02:45,360

get them changed out of their space

78

00:02:49,270 --> 00:02:46,319

suits

79

00:02:50,949 --> 00:02:49,280

and in that tent also we would we plan

80

00:02:54,390 --> 00:02:50,959

to perform some

81

00:02:56,710 --> 00:02:54,400

medical and science testing um

82

00:02:58,390 --> 00:02:56,720

after after that's done we

83

00:03:00,869 --> 00:02:58,400

everyone gets back on the helicopters

84

00:03:03,509 --> 00:03:00,879

and returns to um the airport in

85

00:03:04,869 --> 00:03:03,519

karaganda for return to

86

00:03:06,790 --> 00:03:04,879

in our case we'll be coming back

87

00:03:09,750 --> 00:03:06,800

directly to the states and the russian

88

00:03:11,990 --> 00:03:09,760

crew members go back to them okay now so

89

00:03:13,830 --> 00:03:12,000

scott kelly has been in space for almost

90

00:03:15,990 --> 00:03:13,840

12 months now are you going to be doing

91

00:03:17,830 --> 00:03:16,000

anything special for his return as

92

00:03:19,990 --> 00:03:17,840

opposed to what you normally do for a

93

00:03:23,190 --> 00:03:20,000

say six month crew member

94

00:03:24,630 --> 00:03:23,200

so in in general it's a similar template

95

00:03:27,190 --> 00:03:24,640

um i think

96

00:03:29,750 --> 00:03:27,200

i'm kind of we'll compare it to his last

97

00:03:31,750 --> 00:03:29,760

stay on orbit which was um which i also

98

00:03:32,390 --> 00:03:31,760

had the fortunate good fortune to work

99

00:03:33,589 --> 00:03:32,400

with

100

00:03:34,390 --> 00:03:33,599

him on that

101
00:03:37,350 --> 00:03:34,400
um

102
00:03:40,949 --> 00:03:37,360
but so the the the science and the in

103
00:03:43,430 --> 00:03:40,959
the research questions um are really um

104
00:03:46,070 --> 00:03:43,440
paramount on this one year mission and

105
00:03:47,750 --> 00:03:46,080
in contrast to the last last one

106
00:03:50,869 --> 00:03:47,760
he'll be doing some

107
00:03:53,110 --> 00:03:50,879
uh blood collection like not immediately

108
00:03:54,789 --> 00:03:53,120
before he gets on the the

109
00:03:56,309 --> 00:03:54,799
vehicle to come home but within a few

110
00:03:59,350 --> 00:03:56,319
hours of that

111
00:04:01,910 --> 00:03:59,360
so we'll be we'll be getting

112
00:04:03,670 --> 00:04:01,920
a lot of data on the crew member it's

113
00:04:05,750 --> 00:04:03,680

it's a little bit uh difficult to

114

00:04:08,309 --> 00:04:05,760

describe but um and when you're looking

115

00:04:10,229 --> 00:04:08,319

at a crew member um basically what

116

00:04:12,550 --> 00:04:10,239

there's there's a there's a time

117

00:04:14,630 --> 00:04:12,560

pressure because although you can't see

118

00:04:16,710 --> 00:04:14,640

it in most cases directly you what we're

119

00:04:18,870 --> 00:04:16,720

trying to capture is a snapshot of the

120

00:04:19,990 --> 00:04:18,880

crew's health their capability and

121

00:04:23,430 --> 00:04:20,000

functioning

122

00:04:25,749 --> 00:04:23,440

and that is a constantly changing um

123

00:04:27,909 --> 00:04:25,759

uh picture um even though it's tough to

124

00:04:30,070 --> 00:04:27,919

view just from a person looking at them

125

00:04:31,030 --> 00:04:30,080

but so we do that in a variety of ways

126

00:04:33,670 --> 00:04:31,040

whether it's

127

00:04:36,629 --> 00:04:33,680

blood draws or sample collections or um

128

00:04:37,590 --> 00:04:36,639

some of the um functional testing that

129

00:04:39,909 --> 00:04:37,600

we do

130

00:04:41,430 --> 00:04:39,919

that's what the main goal is so i wanted

131

00:04:42,950 --> 00:04:41,440

to get into that real quick so you guys

132

00:04:45,590 --> 00:04:42,960

are going to be doing something with

133

00:04:47,430 --> 00:04:45,600

functional testing you know really soon

134

00:04:48,950 --> 00:04:47,440

after and i think we've uh talked to

135

00:04:50,790 --> 00:04:48,960

julie robinson a little bit about that

136

00:04:53,270 --> 00:04:50,800

can you expand upon that like what are

137

00:04:55,990 --> 00:04:53,280

some of the the tasks that scott is

138

00:04:58,230 --> 00:04:56,000

going to be uh asked to do you know that

139

00:05:00,390 --> 00:04:58,240

and why are we doing these kind of tests

140

00:05:02,870 --> 00:05:00,400

that's a great question um

141

00:05:05,430 --> 00:05:02,880

there's a there's a test that we ideally

142

00:05:07,270 --> 00:05:05,440

perform at the landing site in the tent

143

00:05:09,670 --> 00:05:07,280

and it's called the functional field

144

00:05:13,909 --> 00:05:09,680

test and the goal of this test is

145

00:05:19,749 --> 00:05:16,230

obtain an assessment of what crews can

146

00:05:21,350 --> 00:05:19,759

perform um so and and the analogs for

147

00:05:22,310 --> 00:05:21,360

this are we want to know

148

00:05:29,029 --> 00:05:22,320

um

149

00:05:31,110 --> 00:05:29,039

down can they open hatches could they do

150

00:05:32,150 --> 00:05:31,120

a space walk uh or

151
00:05:34,230 --> 00:05:32,160
in the case that we're going to

152
00:05:37,510 --> 00:05:34,240
somewhere like mars can we can they go

153
00:05:39,830 --> 00:05:37,520
out right away and do tr um

154
00:05:40,790 --> 00:05:39,840
spacewalks on the surface of that planet

155
00:05:41,990 --> 00:05:40,800
and so

156
00:05:46,550 --> 00:05:42,000
um

157
00:05:48,550 --> 00:05:46,560
as i mentioned we'll we'll do a quick

158
00:05:50,310 --> 00:05:48,560
medical check on the crew member um

159
00:05:51,510 --> 00:05:50,320
we'll get them out of their spacesuits

160
00:05:53,270 --> 00:05:51,520
and then

161
00:05:55,749 --> 00:05:53,280
they're instrumented with some really

162
00:05:57,909 --> 00:05:55,759
interesting technology

163
00:05:59,189 --> 00:05:57,919

a lot of motion sensors

164

00:06:01,029 --> 00:05:59,199

on all their

165

00:06:02,309 --> 00:06:01,039

like on their arms and legs and on their

166

00:06:04,550 --> 00:06:02,319

chest

167

00:06:07,189 --> 00:06:04,560

and that allows us to do

168

00:06:10,150 --> 00:06:07,199

with videography we can um sort of

169

00:06:12,230 --> 00:06:10,160

measure their ability to to move and see

170

00:06:13,430 --> 00:06:12,240

how that's different relative to when

171

00:06:14,710 --> 00:06:13,440

they left

172

00:06:16,710 --> 00:06:14,720

the other things that we're also

173

00:06:18,870 --> 00:06:16,720

monitoring closely are

174

00:06:21,189 --> 00:06:18,880

their heart rate response

175

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

as we're having them do activities and

176

00:06:30,629 --> 00:06:22,000

it's

177

00:06:32,469 --> 00:06:30,639

a mini obstacle course to see how they

178

00:06:34,870 --> 00:06:32,479

how their bodies tolerate navigating

179

00:06:36,390 --> 00:06:34,880

those things maybe not so hard when

180

00:06:37,670 --> 00:06:36,400

you've been down here the whole time but

181

00:06:39,029 --> 00:06:37,680

when you've been coming back from

182

00:06:41,270 --> 00:06:39,039

microgravity it can be a little bit

183

00:06:43,830 --> 00:06:41,280

difficult absolutely um

184

00:06:45,909 --> 00:06:43,840

and and again this is part of that

185

00:06:48,629 --> 00:06:45,919

obtaining snapshots of the crew members

186

00:06:50,950 --> 00:06:48,639

ability we know we've done it multiple

187

00:06:53,430 --> 00:06:50,960

times before the flight in this case and

188

00:06:54,469 --> 00:06:53,440

um we'll do it after the flight and it

189

00:06:59,029 --> 00:06:54,479

it's

190

00:07:01,029 --> 00:06:59,039

perhaps you'll have at one point an

191

00:07:03,110 --> 00:07:01,039

opportunity to maybe show

192

00:07:05,670 --> 00:07:03,120

the audience what the test is but it's a

193

00:07:08,150 --> 00:07:05,680

real practical test and um i think it

194

00:07:10,390 --> 00:07:08,160

gets real valuable information okay and

195

00:07:12,870 --> 00:07:10,400

i mean just one final thing so once he's

196

00:07:14,870 --> 00:07:12,880

back in the country you know the rehab

197

00:07:16,550 --> 00:07:14,880

begins what's what's kind of the rehab

198

00:07:17,909 --> 00:07:16,560

process look for a crew member and is

199

00:07:19,909 --> 00:07:17,919

there anything is there going to be

200

00:07:22,390 --> 00:07:19,919

anything different about his again as

201
00:07:24,950 --> 00:07:22,400
opposed to what we normally do for folks

202
00:07:26,950 --> 00:07:24,960
so the the typical process is so we'll

203
00:07:28,950 --> 00:07:26,960
take a pretty much a 20-hour flight back

204
00:07:32,390 --> 00:07:28,960
to houston

205
00:07:33,990 --> 00:07:32,400
after landing and uh we have this period

206
00:07:36,870 --> 00:07:34,000
where we called the the reconditioning

207
00:07:38,550 --> 00:07:36,880
period and um

208
00:07:42,469 --> 00:07:38,560
typically for a six-month mission it

209
00:07:45,430 --> 00:07:42,479
lasts about 45 days and there's daily um

210
00:07:47,990 --> 00:07:45,440
workouts and exercises to make sure that

211
00:07:49,430 --> 00:07:48,000
we return the crew member back to

212
00:07:51,029 --> 00:07:49,440
the same kind of functioning that they

213
00:07:52,869 --> 00:07:51,039

had before

214

00:07:55,189 --> 00:07:52,879

before the mission started

215

00:07:57,510 --> 00:07:55,199

and so with respect to the one year

216

00:07:59,749 --> 00:07:57,520

mission

217

00:08:02,150 --> 00:07:59,759

usually what we see is crew member crew

218

00:08:04,869 --> 00:08:02,160

members as i described before they're in

219

00:08:06,950 --> 00:08:04,879

a state of change and um their abilities

220

00:08:08,550 --> 00:08:06,960

are improving all the time from from

221

00:08:11,350 --> 00:08:08,560

landing point forward

222

00:08:13,430 --> 00:08:11,360

um i anticipate that um even though he's

223

00:08:15,749 --> 00:08:13,440

been in year in space for a year that

224

00:08:17,749 --> 00:08:15,759

we'll still probably need that full 45

225

00:08:19,670 --> 00:08:17,759

days okay um

226

00:08:21,510 --> 00:08:19,680

and we do have the latitude in the case

227

00:08:24,550 --> 00:08:21,520

that a little bit more time is required

228

00:08:26,629 --> 00:08:24,560

for the rehab process um we can extend

229

00:08:28,950 --> 00:08:26,639

that if necessary

230

00:08:31,189 --> 00:08:28,960

but i anticipate that it'll look

231

00:08:33,269 --> 00:08:31,199

in many ways similar to the six-month

232

00:08:35,350 --> 00:08:33,279

experiences that most of the station

233

00:08:36,949 --> 00:08:35,360

astronauts have all right well again dr

234

00:08:38,949 --> 00:08:36,959

stephen gilmour the lead flight surgeon

235

00:08:40,550 --> 00:08:38,959

for scott kelly's one year mission

236

00:08:41,750 --> 00:08:40,560

getting ready to come home in just under

237

00:08:43,350 --> 00:08:41,760

two weeks

238

00:08:45,110 --> 00:08:43,360

thanks so much for joining me on console

239

00:08:47,190 --> 00:08:45,120

good luck over there in kazakhstan pack

240

00:08:48,949 --> 00:08:47,200

a jacket i know it's gonna be cold but