

A woman with long blonde hair, wearing a black polo shirt with a name tag, is speaking. The background is a blue-tinted image of a space station interior. A blue banner at the bottom contains her name and title.

Karen Nyberg
Expedition 37 Flight Engineer

1
00:00:07,510 --> 00:00:05,190
enjoying the opportunity to fly in space

2
00:00:09,669 --> 00:00:07,520
while aiding in the pursuit of knowledge

3
00:00:11,509 --> 00:00:09,679
are common traits among the six members

4
00:00:14,310 --> 00:00:11,519
of the international space station's

5
00:00:16,390 --> 00:00:14,320
expedition 37 crew

6
00:00:18,710 --> 00:00:16,400
fyodor yurchikhin was born and raised in

7
00:00:21,349 --> 00:00:18,720
the black sea port city of batumi in

8
00:00:23,429 --> 00:00:21,359
soviet georgia growing up in a time and

9
00:00:25,750 --> 00:00:23,439
place where all the children wanted to

10
00:00:28,150 --> 00:00:25,760
be cosmonauts where the winners of kids

11
00:00:29,830 --> 00:00:28,160
games were called gagarins

12
00:00:32,229 --> 00:00:29,840
your chicken wanted to be a part of that

13
00:00:33,670 --> 00:00:32,239

life even if he couldn't be a dashing

14

00:00:36,389 --> 00:00:33,680

test pilot

15

00:00:38,950 --> 00:00:36,399

what reason i understood maybe

16

00:00:41,670 --> 00:00:38,960

in this day in this time then

17

00:00:44,310 --> 00:00:41,680

it's maybe in my health it's not enough

18

00:00:47,590 --> 00:00:44,320

to be a course model but what is more

19

00:00:50,869 --> 00:00:47,600

important for me be a pilot or be in

20

00:00:53,750 --> 00:00:50,879

engineer in space program of course

21

00:00:55,510 --> 00:00:53,760

the space program it was

22

00:00:57,350 --> 00:00:55,520

too important for me

23

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

so after high school your yurchikhin

24

00:01:01,590 --> 00:00:59,680

went to the moscow aviation institute

25

00:01:03,750 --> 00:01:01,600

earned a bachelor's degree in mechanical

26
00:01:06,070 --> 00:01:03,760
engineering specializing in aerospace

27
00:01:08,310 --> 00:01:06,080
vehicles and went straight to work for

28
00:01:10,230 --> 00:01:08,320
the rocket space corporation inergia as

29
00:01:12,310 --> 00:01:10,240
an engineer he worked as a flight

30
00:01:14,550 --> 00:01:12,320
controller and when he became lead

31
00:01:16,390 --> 00:01:14,560
engineer for the mir shuttle program he

32
00:01:18,310 --> 00:01:16,400
spent time at nasa's johnson space

33
00:01:20,149 --> 00:01:18,320
center supporting that effort

34
00:01:23,590 --> 00:01:20,159
your chicken was selected as an inergia

35
00:01:25,590 --> 00:01:23,600
cosmonaut in 1997 and earned a phd in

36
00:01:27,990 --> 00:01:25,600
economics at moscow service state

37
00:01:30,270 --> 00:01:28,000
university while preparing for his first

38
00:01:32,950 --> 00:01:30,280

space flight he was a member of the

39

00:01:35,190 --> 00:01:32,960

sts-112 crew that delivered a piece of

40

00:01:37,910 --> 00:01:35,200

the station's starboard truss during

41

00:01:40,149 --> 00:01:37,920

expedition 5 in 2002

42

00:01:43,350 --> 00:01:40,159

he returned five years later on a soyuz

43

00:01:45,830 --> 00:01:43,360

spacecraft as commander of expedition 15

44

00:01:48,230 --> 00:01:45,840

and made three spacewalks and followed

45

00:01:51,670 --> 00:01:48,240

that with two more evas as a station

46

00:01:53,270 --> 00:01:51,680

flight engineer on expeditions 24 and 25

47

00:01:55,109 --> 00:01:53,280

in 2010.

48

00:01:57,109 --> 00:01:55,119

he believes the station program is

49

00:01:59,190 --> 00:01:57,119

paying off in the things we're learning

50

00:02:01,429 --> 00:01:59,200

while making the effort from improving

51
00:02:03,030 --> 00:02:01,439
the spacecraft themselves to the tools

52
00:02:06,550 --> 00:02:03,040
we develop

53
00:02:09,190 --> 00:02:06,560
but the first big exactly great sensor

54
00:02:11,430 --> 00:02:09,200
for digital community it was factory for

55
00:02:13,510 --> 00:02:11,440
this program and now it's usual for

56
00:02:16,390 --> 00:02:13,520
everybody it's usual for my daughters

57
00:02:19,430 --> 00:02:16,400
it's usual for young boys and girls i

58
00:02:24,390 --> 00:02:19,440
know my profession it's very important

59
00:02:29,270 --> 00:02:27,030
italian air force major luca parmitano

60
00:02:31,509 --> 00:02:29,280
is from sicily born in paterno and

61
00:02:33,990 --> 00:02:31,519
raised in catania in the shadow of mount

62
00:02:35,750 --> 00:02:34,000
aetna although he was very young when he

63
00:02:38,630 --> 00:02:35,760

saw the first space shuttles fly on

64

00:02:40,869 --> 00:02:38,640

television he was captivated by the idea

65

00:02:42,949 --> 00:02:40,879

of what those images represented

66

00:02:44,869 --> 00:02:42,959

so i remember seeing that the first

67

00:02:46,550 --> 00:02:44,879

astronauts floating around

68

00:02:47,509 --> 00:02:46,560

around the space shuttle doing doing

69

00:02:49,350 --> 00:02:47,519

their job

70

00:02:52,229 --> 00:02:49,360

and i think that even in a kid as smart

71

00:02:53,190 --> 00:02:52,239

as i was i just thought that must be the

72

00:02:55,270 --> 00:02:53,200

greatest

73

00:02:56,550 --> 00:02:55,280

job in the world to be able to do those

74

00:02:58,710 --> 00:02:56,560

things and

75

00:03:01,430 --> 00:02:58,720

and and call it a living

76

00:03:03,589 --> 00:03:01,440

so since then i i had this dream of

77

00:03:05,270 --> 00:03:03,599

becoming an astronaut parmitano won a

78

00:03:07,750 --> 00:03:05,280

scholarship to spend a year of high

79

00:03:10,149 --> 00:03:07,760

school in southern california in that

80

00:03:12,550 --> 00:03:10,159

year in america he not only intensified

81

00:03:14,470 --> 00:03:12,560

his desire to be a pilot by living with

82

00:03:16,070 --> 00:03:14,480

a host family in which the father was a

83

00:03:18,070 --> 00:03:16,080

marine navigator

84

00:03:19,910 --> 00:03:18,080

but he met the girl who years later

85

00:03:21,589 --> 00:03:19,920

would become his wife

86

00:03:23,990 --> 00:03:21,599

back in italy parmitano earned a

87

00:03:25,670 --> 00:03:24,000

bachelor's degree in political sciences

88

00:03:28,390 --> 00:03:25,680

at the university of naples and

89

00:03:30,949 --> 00:03:28,400

graduated from italy's air force academy

90

00:03:33,350 --> 00:03:30,959

then completed his basic training at the

91

00:03:35,589 --> 00:03:33,360

euro nato joint jet pilot training

92

00:03:36,710 --> 00:03:35,599

program at shepherd air force base in

93

00:03:38,710 --> 00:03:36,720

texas

94

00:03:40,869 --> 00:03:38,720

after six years with a fighter squadron

95

00:03:43,190 --> 00:03:40,879

in italy he was sent to france to train

96

00:03:45,509 --> 00:03:43,200

as a test pilot and earned a masters in

97

00:03:47,589 --> 00:03:45,519

experimental flight test engineering at

98

00:03:50,710 --> 00:03:47,599

the superior institute of aeronautics

99

00:03:52,390 --> 00:03:50,720

and space in toulouse in 2009 the same

100

00:03:55,190 --> 00:03:52,400

year he was selected for astronaut

101
00:03:57,350 --> 00:03:55,200
training by the european space agency

102
00:04:00,149 --> 00:03:57,360
now he's making his childhood dream a

103
00:04:02,390 --> 00:04:00,159
reality and fulfilling a desire to push

104
00:04:04,229 --> 00:04:02,400
the boundaries of human knowledge

105
00:04:05,429 --> 00:04:04,239
that's who we are that's what makes us

106
00:04:07,830 --> 00:04:05,439
humans

107
00:04:10,710 --> 00:04:07,840
uh that is what makes us

108
00:04:13,110 --> 00:04:10,720
different from all from the rest of the

109
00:04:15,750 --> 00:04:13,120
of the animal kingdom and if we don't

110
00:04:18,629 --> 00:04:15,760
follow our of our nature of being

111
00:04:20,550 --> 00:04:18,639
explorators of being thinkers then we

112
00:04:22,550 --> 00:04:20,560
are denying a part of ourselves that is

113
00:04:25,510 --> 00:04:22,560

incredibly important

114

00:04:27,749 --> 00:04:25,520

dr karen nyberg was part of a big family

115

00:04:29,909 --> 00:04:27,759

growing up in the tiny town of vining

116

00:04:31,990 --> 00:04:29,919

minnesota and from the time she was a

117

00:04:33,990 --> 00:04:32,000

very young girl she knew she wanted to

118

00:04:35,189 --> 00:04:34,000

be an astronaut although she doesn't

119

00:04:37,189 --> 00:04:35,199

know why

120

00:04:38,390 --> 00:04:37,199

she learned some solitary pursuits as a

121

00:04:40,710 --> 00:04:38,400

little girl

122

00:04:42,790 --> 00:04:40,720

i've been sewing my mom taught me to sew

123

00:04:43,670 --> 00:04:42,800

when i was probably five or six years

124

00:04:46,390 --> 00:04:43,680

old

125

00:04:48,629 --> 00:04:46,400

i've been drawing since i was also that

126

00:04:50,310 --> 00:04:48,639

age i used to i would never sit in front

127

00:04:52,150 --> 00:04:50,320

of the television just sitting there

128

00:04:53,670 --> 00:04:52,160

watching tv i always had

129

00:04:56,469 --> 00:04:53,680

a piece of paper and a pencil and was

130

00:04:58,230 --> 00:04:56,479

drawing or doodling or doing something

131

00:05:00,629 --> 00:04:58,240

but she took advantage of being in a

132

00:05:02,870 --> 00:05:00,639

small town to join more school

133

00:05:04,230 --> 00:05:02,880

activities than most kids in big city

134

00:05:05,749 --> 00:05:04,240

schools join

135

00:05:08,070 --> 00:05:05,759

i was on the basketball team the

136

00:05:09,909 --> 00:05:08,080

volleyball team the track team i took

137

00:05:12,230 --> 00:05:09,919

stats for the baseball team i was in the

138

00:05:15,029 --> 00:05:12,240

choir i was in the band i was in the

139

00:05:16,390 --> 00:05:15,039

drama club i was able to participate in

140

00:05:18,390 --> 00:05:16,400

all of them

141

00:05:19,990 --> 00:05:18,400

learn to be a team member

142

00:05:22,469 --> 00:05:20,000

she went to the university of north

143

00:05:24,790 --> 00:05:22,479

dakota to study engineering and learned

144

00:05:26,710 --> 00:05:24,800

about a program that lets students work

145

00:05:27,749 --> 00:05:26,720

at nasa's johnson space center in

146

00:05:31,430 --> 00:05:27,759

houston

147

00:05:33,909 --> 00:05:31,440

while finishing her bachelor's in

148

00:05:36,150 --> 00:05:33,919

mechanical engineering in grand forks

149

00:05:38,469 --> 00:05:36,160

and while starting her graduate work at

150

00:05:40,230 --> 00:05:38,479

the university of texas at austin

151
00:05:42,070 --> 00:05:40,240
after she finished a masters and a

152
00:05:45,029 --> 00:05:42,080
doctorate in mechanical engineering in

153
00:05:46,870 --> 00:05:45,039
austin she returned to jsc working

154
00:05:49,189 --> 00:05:46,880
full-time in the crew and thermal

155
00:05:51,029 --> 00:05:49,199
systems division for two years before

156
00:05:53,990 --> 00:05:51,039
she was picked for the astronaut program

157
00:05:56,870 --> 00:05:54,000
in 2000 where she met her future husband

158
00:05:59,590 --> 00:05:56,880
fellow astronaut candidate doug hurley

159
00:06:01,510 --> 00:05:59,600
nyberg was part of the sts-124 space

160
00:06:03,909 --> 00:06:01,520
shuttle crew that delivered the kibo

161
00:06:05,830 --> 00:06:03,919
laboratory module and japanese robotic

162
00:06:08,870 --> 00:06:05,840
arm to the international space station

163
00:06:11,510 --> 00:06:08,880

in 2008 and was the first person to ever

164

00:06:14,550 --> 00:06:11,520

operate the shuttle robotic arm the main

165

00:06:16,710 --> 00:06:14,560

station arm and the japanese arm

166

00:06:19,590 --> 00:06:16,720

she's confident this mission will appeal

167

00:06:22,390 --> 00:06:19,600

to the adventure seeker in today's kids

168

00:06:25,189 --> 00:06:22,400

i think a lot of it is based just on

169

00:06:26,150 --> 00:06:25,199

human nature that we are all very

170

00:06:28,390 --> 00:06:26,160

curious

171

00:06:31,110 --> 00:06:28,400

people

172

00:06:33,270 --> 00:06:31,120

human beings like challenges and this is

173

00:06:36,070 --> 00:06:33,280

an ultimate challenge

174

00:06:38,629 --> 00:06:36,080

dr oleg kotov is a native of simferopol

175

00:06:41,430 --> 00:06:38,639

in what is now ukraine but as the son of

176
00:06:43,749 --> 00:06:41,440
a soviet military officer he grew up all

177
00:06:45,990 --> 00:06:43,759
over russia and had his sights set on

178
00:06:49,510 --> 00:06:46,000
the military for his own career by the

179
00:06:52,870 --> 00:06:49,520
time he finished high school in moscow

180
00:06:55,110 --> 00:06:52,880
i decided to become

181
00:06:57,350 --> 00:06:55,120
a military officer as well like my

182
00:07:01,110 --> 00:06:57,360
father my grandfather

183
00:07:05,749 --> 00:07:01,120
however i kept dreaming about space and

184
00:07:08,390 --> 00:07:05,759
while i was i had to select my major

185
00:07:11,110 --> 00:07:08,400
i was very careful about it and

186
00:07:14,150 --> 00:07:11,120
i became a military surgeon in the area

187
00:07:16,790 --> 00:07:14,160
of aerospace medicine after graduation

188
00:07:18,550 --> 00:07:16,800

from the kirov military medical academy

189

00:07:20,870 --> 00:07:18,560

kotov went to work at the gagarin

190

00:07:23,110 --> 00:07:20,880

cosmonaut training center as a doctor

191

00:07:24,790 --> 00:07:23,120

studying altitude physiology and the

192

00:07:25,670 --> 00:07:24,800

effects of space flight on the human

193

00:07:27,990 --> 00:07:25,680

body

194

00:07:30,790 --> 00:07:28,000

at the same time he studied diagnostics

195

00:07:33,029 --> 00:07:30,800

and methods of pilot selection and also

196

00:07:35,670 --> 00:07:33,039

earned a degree in patenting

197

00:07:37,990 --> 00:07:35,680

in 1996 he entered air force pilot

198

00:07:40,309 --> 00:07:38,000

school and was selected for cosmonaut

199

00:07:43,350 --> 00:07:40,319

training he made his first space flight

200

00:07:46,230 --> 00:07:43,360

in 2007 and completed two spacewalks as

201
00:07:49,350 --> 00:07:46,240
a flight engineer on expedition 15. he

202
00:07:51,350 --> 00:07:49,360
did another eva during expedition 22

203
00:07:54,629 --> 00:07:51,360
before becoming commander of the station

204
00:07:56,950 --> 00:07:54,639
for expedition 23 in 2010.

205
00:07:59,670 --> 00:07:56,960
kotov then served as deputy chief of the

206
00:08:01,350 --> 00:07:59,680
gctc before starting training for this

207
00:08:03,430 --> 00:08:01,360
mission which presented another

208
00:08:06,790 --> 00:08:03,440
opportunity to fulfill the human

209
00:08:09,510 --> 00:08:06,800
instinct to learn new things

210
00:08:12,469 --> 00:08:09,520
it's a desire to

211
00:08:13,749 --> 00:08:12,479
understand the world around you to

212
00:08:15,430 --> 00:08:13,759
expand the

213
00:08:17,830 --> 00:08:15,440

area where we live

214

00:08:19,270 --> 00:08:17,840

to explore mars

215

00:08:23,670 --> 00:08:19,280

space

216

00:08:23,680 --> 00:08:30,230

star systems so

217

00:08:34,070 --> 00:08:31,670

a desire

218

00:08:36,310 --> 00:08:34,080

to learn something new dr sergey

219

00:08:39,350 --> 00:08:36,320

ryazanskiy is a rarity among russian

220

00:08:40,630 --> 00:08:39,360

cosmonauts one who was born and raised

221

00:08:43,110 --> 00:08:40,640

in moscow

222

00:08:45,670 --> 00:08:43,120

as the son of engineers and a grandson

223

00:08:47,670 --> 00:08:45,680

of mikhail razanski a leading soviet

224

00:08:50,470 --> 00:08:47,680

engineer specializing in missile and

225

00:08:52,790 --> 00:08:50,480

spacecraft radio guidance razanski had

226

00:08:54,870 --> 00:08:52,800

his sights set on a career in science at

227

00:08:56,790 --> 00:08:54,880

a young age

228

00:08:58,550 --> 00:08:56,800

when i was a child i wanted to become a

229

00:09:01,430 --> 00:08:58,560

biologist

230

00:09:03,750 --> 00:09:01,440

so i was studying in a specialized

231

00:09:06,070 --> 00:09:03,760

school where we were majoring in biology

232

00:09:07,590 --> 00:09:06,080

so i knew that i would be a scientist i

233

00:09:10,790 --> 00:09:07,600

think i knew that

234

00:09:13,350 --> 00:09:10,800

since i was in the sixth grade

235

00:09:15,430 --> 00:09:13,360

i knew that i would

236

00:09:16,790 --> 00:09:15,440

try to go to the moscow state

237

00:09:18,630 --> 00:09:16,800

universities

238

00:09:21,030 --> 00:09:18,640

where he graduated with a degree in

239

00:09:23,269 --> 00:09:21,040

biochemistry and went straight to work

240

00:09:25,750 --> 00:09:23,279

at the institute for biomedical problems

241

00:09:28,150 --> 00:09:25,760

at the russian academy of sciences his

242

00:09:30,389 --> 00:09:28,160

specialization in ways to prevent the

243

00:09:32,790 --> 00:09:30,399

adverse effects caused by the absence of

244

00:09:34,630 --> 00:09:32,800

gravity got him involved in the space

245

00:09:37,030 --> 00:09:34,640

industry and sparked an interest in

246

00:09:40,389 --> 00:09:37,040

becoming a cosmonaut himself

247

00:09:42,710 --> 00:09:40,399

in 2003 he was selected to join ibmp's

248

00:09:44,550 --> 00:09:42,720

cosmonaut corps and completed basic

249

00:09:45,750 --> 00:09:44,560

training at the gagarin cosmonaut

250

00:09:48,389 --> 00:09:45,760

training center

251

00:09:50,790 --> 00:09:48,399

in 2006 he earned his doctorate in

252

00:09:54,710 --> 00:09:50,800

physiology and space medicine and in

253

00:09:57,430 --> 00:09:54,720

2009 he was crew commander in a 105 day

254

00:09:58,790 --> 00:09:57,440

long isolation experiment known as mars

255

00:10:02,550 --> 00:09:58,800

500.

256

00:10:04,790 --> 00:10:02,560

by 2010 he was certified as a gctc test

257

00:10:07,110 --> 00:10:04,800

cosmonaut which he calls the most

258

00:10:12,230 --> 00:10:07,120

interesting job in the world because it

259

00:10:17,190 --> 00:10:14,470

anything you can think of is combined by

260

00:10:21,509 --> 00:10:19,430

and being part of this

261

00:10:22,949 --> 00:10:21,519

industry

262

00:10:24,150 --> 00:10:22,959

very interesting you have new

263

00:10:27,110 --> 00:10:24,160

technologies

264

00:10:28,710 --> 00:10:27,120

new approaches and you're always on the

265

00:10:30,949 --> 00:10:28,720

edge so just so you always know the

266

00:10:32,470 --> 00:10:30,959

latest developments

267

00:10:34,870 --> 00:10:32,480

it's very interesting to live this life

268

00:10:38,310 --> 00:10:34,880

it's very interesting to train for this

269

00:10:40,630 --> 00:10:38,320

life that's why i became cosmonaut

270

00:10:42,710 --> 00:10:40,640

u.s air force colonel mike hopkins is

271

00:10:45,190 --> 00:10:42,720

from south central missouri born in

272

00:10:47,269 --> 00:10:45,200

lebanon and raised a few miles away on a

273

00:10:49,670 --> 00:10:47,279

farm outside richland

274

00:10:51,590 --> 00:10:49,680

he credits his small town upbringing for

275

00:10:53,990 --> 00:10:51,600

his getting the chance to try everything

276

00:10:56,790 --> 00:10:54,000

in high school not only football and

277

00:10:58,949 --> 00:10:56,800

other sports but all school activities

278

00:11:02,069 --> 00:10:58,959

and for developing his interest in

279

00:11:05,350 --> 00:11:02,079

engineering my father was a pilot in the

280

00:11:08,230 --> 00:11:05,360

marines back in the early 60s i flew a4s

281

00:11:10,389 --> 00:11:08,240

and so there was aviation in in my

282

00:11:13,590 --> 00:11:10,399

family so that certainly piqued my

283

00:11:16,389 --> 00:11:13,600

interest in it and my interest in space

284

00:11:18,710 --> 00:11:16,399

my desire to become an astronaut

285

00:11:20,630 --> 00:11:18,720

started back in high school hopkins

286

00:11:23,350 --> 00:11:20,640

headed to the university of illinois to

287

00:11:25,590 --> 00:11:23,360

study aerospace engineering he also

288

00:11:27,990 --> 00:11:25,600

walked on to the football team and ended

289

00:11:30,069 --> 00:11:28,000

up as a starter and a team captain by

290

00:11:32,069 --> 00:11:30,079

the time he graduated with his bachelors

291

00:11:33,670 --> 00:11:32,079

in aerospace engineering and a

292

00:11:35,430 --> 00:11:33,680

commission in the air force earned

293

00:11:37,509 --> 00:11:35,440

through the rotc

294

00:11:40,069 --> 00:11:37,519

after finishing a master's in aerospace

295

00:11:42,230 --> 00:11:40,079

engineering at stanford hopkins began

296

00:11:45,110 --> 00:11:42,240

his air force career in a laboratory

297

00:11:47,350 --> 00:11:45,120

working on space systems technologies

298

00:11:49,670 --> 00:11:47,360

then he moved on to become a flight test

299

00:11:52,069 --> 00:11:49,680

engineer even spending time as an

300

00:11:55,509 --> 00:11:52,079

exchange officer at the canadian flight

301
00:11:57,430 --> 00:11:55,519
test center in alberta in 2002 hopkins

302
00:11:59,829 --> 00:11:57,440
won a scholarship to study political

303
00:12:01,910 --> 00:11:59,839
science in italy after which he was

304
00:12:04,949 --> 00:12:01,920
assigned to work in acquisitions at the

305
00:12:06,949 --> 00:12:04,959
pentagon and then as a special assistant

306
00:12:08,949 --> 00:12:06,959
to the vice chairman of the joint chiefs

307
00:12:12,150 --> 00:12:08,959
of staff the job he had when he was

308
00:12:13,829 --> 00:12:12,160
selected as an astronaut in 2009

309
00:12:16,470 --> 00:12:13,839
he's the first member of his astronaut

310
00:12:18,790 --> 00:12:16,480
class to fly in space and eager to use

311
00:12:20,790 --> 00:12:18,800
his mission to try to help satisfy our

312
00:12:23,590 --> 00:12:20,800
desire to learn

313
00:12:25,590 --> 00:12:23,600

humans are always striving for for

314

00:12:27,430 --> 00:12:25,600

knowledge for knowing what's beyond the

315

00:12:31,110 --> 00:12:27,440

hill for knowing how

316

00:12:33,590 --> 00:12:31,120

each little thing works in in our world

317

00:12:35,190 --> 00:12:33,600

whether it's the human itself whether

318

00:12:36,790 --> 00:12:35,200

it's anything within biology the

319

00:12:38,710 --> 00:12:36,800

physical world

320

00:12:41,030 --> 00:12:38,720

all of that we

321

00:12:43,750 --> 00:12:41,040

we have this desire to know as much as

322

00:12:46,310 --> 00:12:43,760

we can about that and and the space