
HATCH

1
00:00:06,950 --> 00:00:02,950
station this is houston are you ready

2
00:00:11,830 --> 00:00:09,750
we are ready for the event

3
00:00:14,230 --> 00:00:11,840
fernback science center this is mission

4
00:00:15,509 --> 00:00:14,240
control houston please call station for

5
00:00:18,790 --> 00:00:15,519
a voice check

6
00:00:22,790 --> 00:00:20,710
station this is

7
00:00:27,109 --> 00:00:22,800
doug rabbi at firm bank science center

8
00:00:31,669 --> 00:00:29,109
hello doug and hello everyone at the

9
00:00:33,350 --> 00:00:31,679
fernbank science center we read you loud

10
00:00:34,630 --> 00:00:33,360
and clear welcome on board the

11
00:00:46,150 --> 00:00:34,640
international space station with

12
00:00:46,160 --> 00:01:01,830
okay

13
00:01:07,830 --> 00:01:04,630

hi my name is centerica harris and i'm

14
00:01:10,149 --> 00:01:07,840
from mlk high school and this question

15
00:01:12,469 --> 00:01:10,159
is for chris hadfield

16
00:01:18,230 --> 00:01:12,479
i was wondering are you used to being

17
00:01:22,789 --> 00:01:20,390
hello am i used to being weightless

18
00:01:25,910 --> 00:01:22,799
every day you wouldn't believe how used

19
00:01:28,149 --> 00:01:25,920
i am to being weightless it is a great

20
00:01:29,670 --> 00:01:28,159
fun thing to be weightless you can you

21
00:01:31,670 --> 00:01:29,680
can go any way you like you can be

22
00:01:33,510 --> 00:01:31,680
upside down or right side up it's so

23
00:01:34,630 --> 00:01:33,520
nice you never even have to hold your

24
00:01:36,789 --> 00:01:34,640
head up

25
00:01:38,310 --> 00:01:36,799
living in weightlessness is is so much

26
00:01:39,910 --> 00:01:38,320
fun there's no up or down and i'm

27
00:01:49,350 --> 00:01:39,920
completely used to it it's going to feel

28
00:01:54,149 --> 00:01:52,310
hello my name is brandon odell i'm from

29
00:01:56,310 --> 00:01:54,159
arabia mountain high school and this

30
00:01:58,230 --> 00:01:56,320
question is directed to tom

31
00:01:59,830 --> 00:01:58,240
what do you have to do if you succumb to

32
00:02:05,270 --> 00:01:59,840
illness or infection do you have to

33
00:02:08,389 --> 00:02:06,870
that's a great question something we

34
00:02:09,749 --> 00:02:08,399
think about a lot

35
00:02:11,670 --> 00:02:09,759
you don't have to leave the space

36
00:02:13,750 --> 00:02:11,680
station at least not right away by any

37
00:02:15,910 --> 00:02:13,760
means we've got actually just under our

38
00:02:17,430 --> 00:02:15,920

feet right here under the floor is our

39
00:02:19,430 --> 00:02:17,440
mini hospital it's got a lot of

40
00:02:20,470 --> 00:02:19,440
equipment we can take care of all minor

41
00:02:22,470 --> 00:02:20,480
problems

42
00:02:25,430 --> 00:02:22,480
we can take care of a person for about a

43
00:02:27,350 --> 00:02:25,440
day for a serious medical problem but if

44
00:02:28,949 --> 00:02:27,360
it got too serious then we'd have to get

45
00:02:30,470 --> 00:02:28,959
in our soyuz it's kind of like our

46
00:02:31,910 --> 00:02:30,480
ambulance here's a

47
00:02:34,070 --> 00:02:31,920
one of the medical kits we've got a

48
00:02:36,869 --> 00:02:34,080
bunch of these look just like this and

49
00:02:37,830 --> 00:02:36,879
our crewmate chris cassidy is opening it

50
00:02:39,670 --> 00:02:37,840
up to kind of show you it's got

51
00:02:41,589 --> 00:02:39,680
everything laid out in there whole bunch

52
00:02:43,670 --> 00:02:41,599
of kits like this full of medications

53
00:02:45,670 --> 00:02:43,680
and anything we might need plus doctors

54
00:02:47,589 --> 00:02:45,680
on the ground to talk to and specialists

55
00:02:49,030 --> 00:02:47,599
on the ground if we had to we could even

56
00:02:50,949 --> 00:02:49,040
bring them on board with video to help

57
00:02:52,710 --> 00:02:50,959
us out with a medical problem but if it

58
00:02:54,790 --> 00:02:52,720
got bad enough yeah we'd have to get in

59
00:03:02,309 --> 00:02:54,800
our spaceship our soyuz and come back to

60
00:03:06,149 --> 00:03:04,070
after warm greetings um my name is

61
00:03:08,470 --> 00:03:06,159
ferdau sabdul and i go to sucker high

62
00:03:10,229 --> 00:03:08,480
school um i have a question from mr

63
00:03:11,910 --> 00:03:10,239

chris cassidy

64
00:03:13,990 --> 00:03:11,920
what would you do if you saw something

65
00:03:19,990 --> 00:03:14,000
out of the ordinary in space such as

66
00:03:24,390 --> 00:03:22,229
ah very interesting question well

67
00:03:26,390 --> 00:03:24,400
fortunately for us so far the only uh

68
00:03:28,149 --> 00:03:26,400
strange forms of life we see are each

69
00:03:31,350 --> 00:03:28,159
other at six o'clock in the morning when

70
00:03:32,789 --> 00:03:31,360
we wake up out of our crew quarters uh

71
00:03:35,190 --> 00:03:32,799
but um

72
00:03:37,910 --> 00:03:35,200
you know we that's not something we plan

73
00:03:40,149 --> 00:03:37,920
for every day if and uh we'd communicate

74
00:03:41,589 --> 00:03:40,159
with mission control and and uh

75
00:03:50,710 --> 00:03:41,599
just make sure that everything was

76
00:03:55,110 --> 00:03:53,190
hello i'm govinda harris from arabia

77
00:03:56,470 --> 00:03:55,120
mountain high school and my question is

78
00:03:58,229 --> 00:03:56,480
for chris

79
00:04:01,110 --> 00:03:58,239
how do you recycle the oxygen you

80
00:04:03,429 --> 00:04:01,120
breathe specifically are there plants or

81
00:04:04,710 --> 00:04:03,439
machines that convert carbon dioxide to

82
00:04:05,509 --> 00:04:04,720
oxygen

83
00:04:12,630 --> 00:04:05,519
or

84
00:04:15,910 --> 00:04:14,710
yeah that's that's a cool question

85
00:04:16,949 --> 00:04:15,920
because it's a problem we have to solve

86
00:04:19,590 --> 00:04:16,959
we live

87
00:04:21,110 --> 00:04:19,600
sort of inside an aluminum bubble up

88
00:04:23,510 --> 00:04:21,120

here and then the outside of our

89
00:04:25,430 --> 00:04:23,520
spaceship is an empty vacuum just

90
00:04:27,270 --> 00:04:25,440
nothing so all of our oxygen and

91
00:04:30,469 --> 00:04:27,280
everything's inside so when we breathe

92
00:04:32,230 --> 00:04:30,479
out with carbon dioxide where does it go

93
00:04:33,830 --> 00:04:32,240
and on earth plants and grass and

94
00:04:37,110 --> 00:04:33,840
everything turn soak up the carbon

95
00:04:39,030 --> 00:04:37,120
dioxide here we have machines that do it

96
00:04:40,950 --> 00:04:39,040
for us that purify that remove the

97
00:04:42,550 --> 00:04:40,960
carbon dioxide

98
00:04:44,150 --> 00:04:42,560
when we go to the bathroom the liquid

99
00:04:45,110 --> 00:04:44,160
that comes out of us some of it we

100
00:04:47,350 --> 00:04:45,120
actually

101
00:04:49,510 --> 00:04:47,360
uh put electricity into so that the

102
00:04:51,270 --> 00:04:49,520
oxygen is recovered from that and then

103
00:04:53,430 --> 00:04:51,280
also when resupply ships come up they

104
00:04:55,430 --> 00:04:53,440
bring oxygen to us so the answer to your

105
00:04:57,350 --> 00:04:55,440
question is sort of all three but we

106
00:04:59,270 --> 00:04:57,360
don't have any plants on board that are

107
00:05:01,189 --> 00:04:59,280
just for purifying our air

108
00:05:03,430 --> 00:05:01,199
not yet we've had a few plants on board

109
00:05:04,950 --> 00:05:03,440
but so far it's not an efficient way

110
00:05:07,590 --> 00:05:04,960
when you have something as critical as a

111
00:05:15,270 --> 00:05:07,600
spaceship for us to uh to count on to

112
00:05:20,070 --> 00:05:18,070
hi my name is nick iowa finlayson and i

113
00:05:22,230 --> 00:05:20,080

attend miller grove high school this

114
00:05:24,390 --> 00:05:22,240
question is for tom

115
00:05:26,390 --> 00:05:24,400
how long are you away from your family

116
00:05:31,909 --> 00:05:26,400
and how often do you get the opportunity

117
00:05:36,070 --> 00:05:33,749
well i've been away from my family now

118
00:05:38,469 --> 00:05:36,080
for four months typically crews come up

119
00:05:40,310 --> 00:05:38,479
here to the space station for six months

120
00:05:43,029 --> 00:05:40,320
and but you know what uh two and a half

121
00:05:44,790 --> 00:05:43,039
years but when before we fly in space

122
00:05:46,469 --> 00:05:44,800
that's when we start training and we

123
00:05:47,670 --> 00:05:46,479
travel all around the world to many

124
00:05:49,350 --> 00:05:47,680
different countries to do our training

125
00:05:50,070 --> 00:05:49,360
so we're away from our families then as

126
00:05:51,749 --> 00:05:50,080
well

127
00:05:53,510 --> 00:05:51,759
so that's probably one of the hardest

128
00:05:55,110 --> 00:05:53,520
things about flying in space one of

129
00:05:56,469 --> 00:05:55,120
these days i'm hoping we'll get to where

130
00:05:58,390 --> 00:05:56,479
we can uh

131
00:06:00,230 --> 00:05:58,400
bring our families up with us and have

132
00:06:02,150 --> 00:06:00,240
the whole go on a family trip up into

133
00:06:03,270 --> 00:06:02,160
space that'd be a wonderful goal to

134
00:06:05,830 --> 00:06:03,280
achieve

135
00:06:08,070 --> 00:06:05,840
i can talk to my family we have a i can

136
00:06:09,590 --> 00:06:08,080
use my laptop to talk to my family at

137
00:06:10,950 --> 00:06:09,600
their home phone

138
00:06:13,350 --> 00:06:10,960

bouncing the signal off a lot of

139
00:06:15,510 --> 00:06:13,360
satellites and we have email it's not

140
00:06:17,510 --> 00:06:15,520
quite as efficient as the email you

141
00:06:18,950 --> 00:06:17,520
might use at home but it's really really

142
00:06:26,230 --> 00:06:18,960
good and it's a wonderful way to stay in

143
00:06:31,270 --> 00:06:28,870
hi my name is morgan rossi i go to druid

144
00:06:32,790 --> 00:06:31,280
hills high school this question is for

145
00:06:34,790 --> 00:06:32,800
chris cassidy

146
00:06:36,629 --> 00:06:34,800
how did your personal priorities change

147
00:06:42,790 --> 00:06:36,639
once you were in space what did you

148
00:06:46,309 --> 00:06:44,710
morgan that's a really interesting

149
00:06:48,070 --> 00:06:46,319
question and

150
00:06:51,110 --> 00:06:48,080
there's probably two ways to answer it

151
00:06:54,390 --> 00:06:51,120
one is on a more small scale day-to-day

152
00:06:56,070 --> 00:06:54,400
type thing and my priorities are to

153
00:06:58,150 --> 00:06:56,080
complete the jobs that mission control

154
00:07:00,710 --> 00:06:58,160
has laid out for us that day as

155
00:07:03,350 --> 00:07:00,720
efficiently and correctly as i can

156
00:07:06,150 --> 00:07:03,360
without making any mistakes and uh and

157
00:07:08,469 --> 00:07:06,160
helping out my crewmates there's a

158
00:07:10,150 --> 00:07:08,479
saying that we have that there's no

159
00:07:11,670 --> 00:07:10,160
greater no more important thing than

160
00:07:14,230 --> 00:07:11,680
what you're doing right then because on

161
00:07:16,230 --> 00:07:14,240
a space station you can

162
00:07:19,110 --> 00:07:16,240
take action that can cause problems to

163
00:07:21,110 --> 00:07:19,120

equipment or yourself so on on a small

164
00:07:22,950 --> 00:07:21,120
scale my priorities are just working

165
00:07:25,589 --> 00:07:22,960
correctly and well

166
00:07:27,270 --> 00:07:25,599
on a bigger scale more broader scale

167
00:07:29,270 --> 00:07:27,280
looking down at the planet is something

168
00:07:31,749 --> 00:07:29,280
that's really just amazing looking at

169
00:07:34,390 --> 00:07:31,759
the blues and the browns and the whites

170
00:07:36,469 --> 00:07:34,400
of all the different majestic colors and

171
00:07:38,309 --> 00:07:36,479
it really makes you think that's our

172
00:07:41,189 --> 00:07:38,319
wonderful home our planet and we need to

173
00:07:42,790 --> 00:07:41,199
take care of it as a as a mankind and

174
00:07:44,469 --> 00:07:42,800
that's sort of the broader scale

175
00:07:54,550 --> 00:07:44,479
perspective that being here is giving

176
00:07:59,510 --> 00:07:57,510
hi my name is jl stanton i go to arabia

177
00:08:01,430 --> 00:07:59,520
mountain high school and this question

178
00:08:03,270 --> 00:08:01,440
is for chris hadfield

179
00:08:05,589 --> 00:08:03,280
how long do you think it will be until

180
00:08:13,830 --> 00:08:05,599
regular people get to go up to space or

181
00:08:16,950 --> 00:08:15,189
well two things

182
00:08:18,710 --> 00:08:16,960
number one we're just regular people

183
00:08:21,510 --> 00:08:18,720
it's not like we were born as astronauts

184
00:08:23,270 --> 00:08:21,520
or something we all went to middle

185
00:08:25,029 --> 00:08:23,280
school in high school

186
00:08:26,710 --> 00:08:25,039
and i decided to be an astronaut when i

187
00:08:29,270 --> 00:08:26,720
was nine years old then i started

188
00:08:31,670 --> 00:08:29,280

turning myself into an astronaut when i

189
00:08:33,269 --> 00:08:31,680
was nine so it's not like we're not

190
00:08:34,709 --> 00:08:33,279
regular people with this just what we

191
00:08:36,790 --> 00:08:34,719
chose to do

192
00:08:39,430 --> 00:08:36,800
but as far as just being able to maybe

193
00:08:41,029 --> 00:08:39,440
just buy a ticket and go go fly in space

194
00:08:43,829 --> 00:08:41,039
it's sort of like

195
00:08:45,190 --> 00:08:43,839
how flying was early on regular people

196
00:08:47,590 --> 00:08:45,200
couldn't just go for a flight at an

197
00:08:50,150 --> 00:08:47,600
airplane and it really wasn't until

198
00:08:51,590 --> 00:08:50,160
after two world wars that there was a

199
00:08:54,550 --> 00:08:51,600
huge amount of

200
00:08:56,710 --> 00:08:54,560
research done on making airplanes faster

201
00:08:59,110 --> 00:08:56,720
and safer and more efficient it wasn't

202
00:09:00,870 --> 00:08:59,120
really until the 50s that just regular

203
00:09:02,790 --> 00:09:00,880
people could buy airline tickets and go

204
00:09:05,030 --> 00:09:02,800
flying and we're sort of

205
00:09:08,470 --> 00:09:05,040
in the early stages of space flight way

206
00:09:10,630 --> 00:09:08,480
way back in like 1910 or 1950

207
00:09:12,870 --> 00:09:10,640
of aviation where it's possible but it's

208
00:09:14,710 --> 00:09:12,880
still really hard and dangerous and we

209
00:09:16,470 --> 00:09:14,720
still need to invent a lot of things

210
00:09:17,990 --> 00:09:16,480
before anybody can just buy a ticket and

211
00:09:19,350 --> 00:09:18,000
go but that's where we're headed and

212
00:09:21,110 --> 00:09:19,360
there's some companies just starting to

213
00:09:22,710 --> 00:09:21,120

do that now and hopefully by the time

214
00:09:24,470 --> 00:09:22,720
you're our age

215
00:09:25,670 --> 00:09:24,480
you could be an astronaut if you want or

216
00:09:33,990 --> 00:09:25,680
maybe you may be able to just buy a

217
00:09:38,389 --> 00:09:36,310
hi my name is aziza fullerton and this

218
00:09:40,230 --> 00:09:38,399
question is for tom

219
00:09:42,630 --> 00:09:40,240
do you feel a difference in your body as

220
00:09:44,389 --> 00:09:42,640
you travel through the atmosphere if so

221
00:09:50,150 --> 00:09:44,399
what or how do you feel and how do you

222
00:09:53,590 --> 00:09:51,750
uh traveling through the atmosphere to

223
00:09:56,070 --> 00:09:53,600
get up here in space and then arriving

224
00:09:58,310 --> 00:09:56,080
in space are two very different stages

225
00:09:59,509 --> 00:09:58,320
you can definitely feel the launch uh

226
00:10:01,030 --> 00:09:59,519
when you're sitting in the rocket all

227
00:10:03,430 --> 00:10:01,040
the vibration and the shaking you can

228
00:10:05,590 --> 00:10:03,440
even feel the rocket

229
00:10:07,269 --> 00:10:05,600
it's computer searching for that perfect

230
00:10:08,150 --> 00:10:07,279
point in orbit that you're going to

231
00:10:09,990 --> 00:10:08,160
reach

232
00:10:12,230 --> 00:10:10,000
there's a pressure in your chest when

233
00:10:13,670 --> 00:10:12,240
you're in inside the rocket as it's

234
00:10:15,990 --> 00:10:13,680
accelerating through the atmosphere and

235
00:10:17,350 --> 00:10:16,000
getting into space feels like

236
00:10:18,710 --> 00:10:17,360
some of you say it's like a gorilla on

237
00:10:20,710 --> 00:10:18,720
your chest you have to take your breath

238
00:10:22,470 --> 00:10:20,720

into little sips and then when you hit

239
00:10:23,829 --> 00:10:22,480
zero gravity suddenly you're thrown

240
00:10:25,590 --> 00:10:23,839
forward in your seat

241
00:10:27,590 --> 00:10:25,600
and everything is weightless it's a very

242
00:10:29,430 --> 00:10:27,600
sudden event after that the slower

243
00:10:31,829 --> 00:10:29,440
changes occur as your body gets used to

244
00:10:33,110 --> 00:10:31,839
weightlessness uh i noticed that first

245
00:10:34,230 --> 00:10:33,120
thing you notice that the blood goes up

246
00:10:36,069 --> 00:10:34,240
into your head you almost feel like

247
00:10:37,590 --> 00:10:36,079
you're hanging upside down a little bit

248
00:10:40,150 --> 00:10:37,600
and you might feel a little dizzy in

249
00:10:41,590 --> 00:10:40,160
your head just because your sensors that

250
00:10:43,190 --> 00:10:41,600
tell you what's up and what's down that

251
00:10:44,710 --> 00:10:43,200
are inside your head they don't know

252
00:10:47,269 --> 00:10:44,720
what to do with this information the

253
00:10:48,949 --> 00:10:47,279
lack of of gravity they have no idea how

254
00:10:52,230 --> 00:10:48,959
to deal with that at first but then your

255
00:10:54,069 --> 00:10:52,240
body adapts to it and then over time

256
00:10:55,509 --> 00:10:54,079
you can feel all those changes slightly

257
00:10:57,350 --> 00:10:55,519
go away so you don't notice them much

258
00:10:59,269 --> 00:10:57,360
anymore but our bodies are changing

259
00:11:00,630 --> 00:10:59,279
still right now while we're here our

260
00:11:02,150 --> 00:11:00,640
bones and our muscles are wasting a

261
00:11:03,590 --> 00:11:02,160
little bit because we're not even we're

262
00:11:04,870 --> 00:11:03,600
not working hard at all we're not

263
00:11:06,389 --> 00:11:04,880

standing and we're not having to do any

264
00:11:08,150 --> 00:11:06,399
work just to be here floating in front

265
00:11:09,590 --> 00:11:08,160
of you so we have to exercise to take

266
00:11:10,870 --> 00:11:09,600
care of that but those are some of the

267
00:11:17,350 --> 00:11:10,880
changes that we feel when we come up

268
00:11:21,670 --> 00:11:19,750
hi my name is victoria brown and i go to

269
00:11:24,310 --> 00:11:21,680
ravy mountain high school

270
00:11:26,949 --> 00:11:24,320
this question is for chris cassidy

271
00:11:30,150 --> 00:11:26,959
i heard that astronauts lose

272
00:11:32,310 --> 00:11:30,160
bone destiny in their arms and stuff so

273
00:11:39,990 --> 00:11:32,320
is this a change that you feel or do you

274
00:11:43,350 --> 00:11:41,269
well that's interesting because we're

275
00:11:45,509 --> 00:11:43,360
studying that very subject right now tom

276
00:11:47,590 --> 00:11:45,519
just briefly mentioned it a second ago

277
00:11:48,949 --> 00:11:47,600
and what we've learned over time in

278
00:11:50,629 --> 00:11:48,959
recent years

279
00:11:52,550 --> 00:11:50,639
is that there are a few critical things

280
00:11:54,710 --> 00:11:52,560
we can do to help

281
00:11:57,030 --> 00:11:54,720
lessen the impact of the bone density

282
00:12:00,629 --> 00:11:57,040
loss and that and the main thing we can

283
00:12:03,590 --> 00:12:00,639
do is resistive exercise lifting weights

284
00:12:06,069 --> 00:12:03,600
or putting what we call a load on our

285
00:12:07,430 --> 00:12:06,079
bones and if we do that well

286
00:12:12,790 --> 00:12:07,440
and

287
00:12:14,389 --> 00:12:12,800
for our given body

288
00:12:16,710 --> 00:12:14,399

then our goal as each individual

289
00:12:18,069 --> 00:12:16,720
astronaut is to have no bone density now

290
00:12:20,069 --> 00:12:18,079
that's a hard

291
00:12:22,230 --> 00:12:20,079
thing to achieve and when we get back to

292
00:12:24,629 --> 00:12:22,240
earth we usually do lose a little bit of

293
00:12:27,110 --> 00:12:24,639
bone density i personally haven't i've

294
00:12:28,710 --> 00:12:27,120
on a shuttle mission i didn't experience

295
00:12:30,150 --> 00:12:28,720
much bone density loss because it was

296
00:12:32,310 --> 00:12:30,160
such a short mission

297
00:12:34,310 --> 00:12:32,320
so i'll be very curious to possibly come

298
00:12:36,389 --> 00:12:34,320
back to atlanta and answer your question

299
00:12:38,470 --> 00:12:36,399
at the end of this six months if i felt

300
00:12:45,990 --> 00:12:38,480
the difference between prior to flight

301
00:12:50,949 --> 00:12:48,790
hi my name is emma matthews and this is

302
00:12:53,350 --> 00:12:50,959
from hills high school and this question

303
00:13:00,389 --> 00:12:53,360
is for chris hadfield do non-human

304
00:13:04,470 --> 00:13:02,310
yes they do imagine what it's going to

305
00:13:06,470 --> 00:13:04,480
be like for the first human baby that's

306
00:13:07,590 --> 00:13:06,480
born in space because eventually it'll

307
00:13:09,509 --> 00:13:07,600
happen

308
00:13:11,269 --> 00:13:09,519
you know how will it develop as it grows

309
00:13:13,430 --> 00:13:11,279
how will its spine and its bones and

310
00:13:15,190 --> 00:13:13,440
everything develop without gravity and

311
00:13:17,110 --> 00:13:15,200
one way to try and understand that is to

312
00:13:19,670 --> 00:13:17,120
bring animals that have a very quick

313
00:13:21,110 --> 00:13:19,680

life you know very simple small animals

314
00:13:23,030 --> 00:13:21,120
and so we've had several on board

315
00:13:24,629 --> 00:13:23,040
everything from little tiny fishes you

316
00:13:26,470 --> 00:13:24,639
know right through a bunch of others to

317
00:13:28,629 --> 00:13:26,480
try and understand just that question

318
00:13:31,030 --> 00:13:28,639
what we are finding is yes their their

319
00:13:32,790 --> 00:13:31,040
skeletons develop differently uh it's as

320
00:13:35,269 --> 00:13:32,800
if you spent your whole life

321
00:13:37,509 --> 00:13:35,279
floating in jello and and saw how your

322
00:13:38,949 --> 00:13:37,519
body would react and so it just develops

323
00:13:41,590 --> 00:13:38,959
differently your body's the product of

324
00:13:43,430 --> 00:13:41,600
what you do to a large degree so yes

325
00:13:45,269 --> 00:13:43,440
animals have the same problems that we

326
00:13:46,710 --> 00:13:45,279
do and it's sort of the same problem

327
00:13:48,790 --> 00:13:46,720
that a lot of older people have on earth

328
00:13:56,870 --> 00:13:48,800
with osteoporosis so it's an important

329
00:14:00,550 --> 00:13:58,629
hello my name is zachary channel and i

330
00:14:02,790 --> 00:14:00,560
go to southwest dekalb and this question

331
00:14:04,389 --> 00:14:02,800
is for tom is it a problem if you become

332
00:14:10,470 --> 00:14:04,399
overweight or underweight for lunch or

333
00:14:13,990 --> 00:14:12,470
well it could be a problem you know we

334
00:14:16,230 --> 00:14:14,000
work pretty hard on making sure that

335
00:14:17,750 --> 00:14:16,240
doesn't happen that we get enough to eat

336
00:14:20,230 --> 00:14:17,760
and that we exercise we have a good

337
00:14:22,550 --> 00:14:20,240
appetite and the exercise keep helps

338
00:14:24,150 --> 00:14:22,560

keep us from getting overweight as well

339
00:14:25,590 --> 00:14:24,160
but it's important you want need to be

340
00:14:27,750 --> 00:14:25,600
able to fit in your seat in your

341
00:14:29,110 --> 00:14:27,760
spaceship for one thing if you launch

342
00:14:30,230 --> 00:14:29,120
now we grow a little bit because of

343
00:14:32,710 --> 00:14:30,240
weightlessness and you need to be able

344
00:14:33,750 --> 00:14:32,720
to fit in that same seat to go home so

345
00:14:35,350 --> 00:14:33,760
we actually

346
00:14:36,150 --> 00:14:35,360
consciously think of that and plan for

347
00:14:37,430 --> 00:14:36,160
that

348
00:14:38,150 --> 00:14:37,440
but it's important

349
00:14:40,949 --> 00:14:38,160
to

350
00:14:42,870 --> 00:14:40,959
before launch

351
00:14:44,629 --> 00:14:42,880
we want our ejection systems and our

352
00:14:46,470 --> 00:14:44,639
training aircraft work just right we

353
00:14:47,990 --> 00:14:46,480
need to be able to fit in our spacesuits

354
00:14:50,470 --> 00:14:48,000
there's only a few types of spacesuits

355
00:14:52,069 --> 00:14:50,480
there's a few sizes they're way too

356
00:14:53,750 --> 00:14:52,079
expensive to make a custom suit for

357
00:14:56,230 --> 00:14:53,760
every astronaut so we have to be able to

358
00:14:57,110 --> 00:14:56,240
fit in those and so you can't be a

359
00:14:58,629 --> 00:14:57,120
little

360
00:15:04,230 --> 00:14:58,639
too small or

361
00:15:06,069 --> 00:15:04,240
a lot of us like to exercise so once we

362
00:15:07,509 --> 00:15:06,079
arrive at nasa as astronauts with a

363
00:15:09,269 --> 00:15:07,519

certain body type we're usually able to

364
00:15:17,269 --> 00:15:09,279
keep that body type the whole time

365
00:15:21,110 --> 00:15:19,350
hi my name is amy fallon and i go to

366
00:15:23,590 --> 00:15:21,120
shambly charter high school this

367
00:15:25,189 --> 00:15:23,600
question is for kiss cassidy

368
00:15:31,269 --> 00:15:25,199
how long does it take to adjust to

369
00:15:36,949 --> 00:15:34,230
hi amy well as a rough rule of thumb it

370
00:15:38,870 --> 00:15:36,959
takes about as long as you are in space

371
00:15:41,189 --> 00:15:38,880
to fully get back to your normal self

372
00:15:44,389 --> 00:15:41,199
when you get uh when you return when tom

373
00:15:45,990 --> 00:15:44,399
and i were on sts-127 together um we

374
00:15:49,509 --> 00:15:46,000
were in space for two weeks much like

375
00:15:51,990 --> 00:15:49,519
chris's earlier shuttle missions and um

376
00:15:55,189 --> 00:15:52,000
after two weeks i felt ready to do all

377
00:15:56,870 --> 00:15:55,199
the things i did before go for a run

378
00:15:58,150 --> 00:15:56,880
walk this have the same endurance and

379
00:15:59,990 --> 00:15:58,160
that and that type of thing we're not

380
00:16:02,550 --> 00:16:00,000
allowed to drive

381
00:16:04,389 --> 00:16:02,560
for the first handful of days and when

382
00:16:06,389 --> 00:16:04,399
we come back from a multi-month mission

383
00:16:07,590 --> 00:16:06,399
we're not allowed to drive for about two

384
00:16:10,310 --> 00:16:07,600
weeks and i think that's a great rule

385
00:16:11,990 --> 00:16:10,320
because uh for instance when i

386
00:16:14,069 --> 00:16:12,000
took my first shower

387
00:16:15,910 --> 00:16:14,079
after returning and i had my eyes closed

388
00:16:18,389 --> 00:16:15,920

and washing my hair

389
00:16:19,990 --> 00:16:18,399
the whole world started to spin around

390
00:16:21,990 --> 00:16:20,000
inside the shower and i did my best not

391
00:16:23,990 --> 00:16:22,000
even tumble up not to tumble outside of

392
00:16:26,230 --> 00:16:24,000
the the shower curtains so there's

393
00:16:27,990 --> 00:16:26,240
really good rules in place and it takes

394
00:16:35,189 --> 00:16:28,000
us about several months after this

395
00:16:39,749 --> 00:16:37,430
hi my name is taylor nguyen and i'm from

396
00:16:42,069 --> 00:16:39,759
tucker high school and my questions for

397
00:16:46,949 --> 00:16:42,079
chris hadfield what do you do in your

398
00:16:51,990 --> 00:16:48,870
hey thanks for mostly we look out the

399
00:16:54,389 --> 00:16:52,000
window it sounds silly but it is

400
00:16:57,030 --> 00:16:54,399
more beautiful than you can imagine we

401
00:16:59,509 --> 00:16:57,040
we go around the world every 90 minutes

402
00:17:00,949 --> 00:16:59,519
the world turns underneath us so every

403
00:17:03,670 --> 00:17:00,959
time you come around it's a new part of

404
00:17:05,750 --> 00:17:03,680
the world you get a sunrise and then 45

405
00:17:07,270 --> 00:17:05,760
minutes later you get a sunset looking

406
00:17:09,590 --> 00:17:07,280
out the window

407
00:17:11,110 --> 00:17:09,600
is like uh it's almost like

408
00:17:13,189 --> 00:17:11,120
like you're stealing something it's just

409
00:17:14,470 --> 00:17:13,199
so precious and it's just coming there

410
00:17:15,829 --> 00:17:14,480
in front of you

411
00:17:17,429 --> 00:17:15,839
and then also i like doing other things

412
00:17:19,750 --> 00:17:17,439
i play guitar and sing so i like playing

413
00:17:21,590 --> 00:17:19,760

music up here and i read a little bit we

414
00:17:23,510 --> 00:17:21,600
talk to each other but the number one

415
00:17:31,590 --> 00:17:23,520
pastime i think of all astronauts is

416
00:17:35,750 --> 00:17:33,510
hi my name is jordan moore from miller

417
00:17:37,669 --> 00:17:35,760
gulf high school my question is for tom

418
00:17:43,029 --> 00:17:37,679
what is a typical day like on the space

419
00:17:47,430 --> 00:17:45,510
well there's probably no such thing as a

420
00:17:48,950 --> 00:17:47,440
typical day but

421
00:17:50,150 --> 00:17:48,960
when we all wake up because every day is

422
00:17:52,710 --> 00:17:50,160
so different we've got so many

423
00:17:54,150 --> 00:17:52,720
experiments going on but when we wake up

424
00:17:56,230 --> 00:17:54,160
usually what we do we do what you would

425
00:17:57,110 --> 00:17:56,240
do at home we eat breakfast

426
00:17:59,350 --> 00:17:57,120
we

427
00:18:00,870 --> 00:17:59,360
maybe review some of our

428
00:18:02,310 --> 00:18:00,880
homework look over the things we're

429
00:18:04,150 --> 00:18:02,320
going to do that day so that we know

430
00:18:05,190 --> 00:18:04,160
that we're ready to go we might read the

431
00:18:06,789 --> 00:18:05,200
news

432
00:18:08,950 --> 00:18:06,799
mission control sends us up some

433
00:18:10,390 --> 00:18:08,960
information about the day coming up in

434
00:18:12,390 --> 00:18:10,400
our activities that day so we'll take a

435
00:18:14,150 --> 00:18:12,400
look at that as well and then we'll get

436
00:18:14,950 --> 00:18:14,160
all cleaned up and get ready to go to

437
00:18:18,470 --> 00:18:14,960
work

438
00:18:20,230 --> 00:18:18,480

break for lunch we like to eat lunch

439
00:18:22,390 --> 00:18:20,240
together so we try to do that together

440
00:18:25,750 --> 00:18:22,400
we do spend two and a half hours a day

441
00:18:27,510 --> 00:18:25,760
each of us with exercise both

442
00:18:29,510 --> 00:18:27,520
this there's a cycle ergometer a

443
00:18:31,430 --> 00:18:29,520
stationary bike right here there's a

444
00:18:33,990 --> 00:18:31,440
resistive exercise device

445
00:18:36,150 --> 00:18:34,000
behind us and a treadmill as well so

446
00:18:37,990 --> 00:18:36,160
we're exercising a lot then we'll have

447
00:18:39,830 --> 00:18:38,000
dinner and then we

448
00:18:42,070 --> 00:18:39,840
have a little bit of free time then and

449
00:18:43,830 --> 00:18:42,080
we might as chris mentioned look out the

450
00:18:45,669 --> 00:18:43,840
window

451
00:18:47,190 --> 00:18:45,679
sometimes we are able to watch a little

452
00:18:49,350 --> 00:18:47,200
bit of tv but usually we're doing some

453
00:18:50,950 --> 00:18:49,360
homework or making some videos taking

454
00:18:51,990 --> 00:18:50,960
pictures things that we're going to want

455
00:18:54,070 --> 00:18:52,000
to

456
00:18:56,310 --> 00:18:54,080
treasure when we get back from our space

457
00:18:58,150 --> 00:18:56,320
flight when oftentimes we'll call home

458
00:19:00,150 --> 00:18:58,160
as well so that's about as close as i

459
00:19:08,789 --> 00:19:00,160
can get to a typical day i think

460
00:19:11,909 --> 00:19:10,150
members on the space station we thank

461
00:19:14,070 --> 00:19:11,919
you greatly for your time i think the

462
00:19:16,710 --> 00:19:14,080
students have greatly appreciated being

463
00:19:18,310 --> 00:19:16,720

with you today uh we've been informed by

464
00:19:19,990 --> 00:19:18,320
by houston that we're we're kind of out

465
00:19:21,590 --> 00:19:20,000
of time for this window

466
00:19:23,430 --> 00:19:21,600
but we want to say thank you for

467
00:19:25,270 --> 00:19:23,440
everything that you're doing for

468
00:19:27,270 --> 00:19:25,280
the country in

469
00:19:31,669 --> 00:19:27,280
in our future out in space thank you

470
00:19:41,510 --> 00:19:34,630
it was a delight to talk to you today

471
00:19:47,669 --> 00:19:43,190
station this is houston acr that

472
00:19:52,150 --> 00:19:50,230
thank you fernbang science center and