



1
00:00:00,000 --> 00:00:02,609
when you and I walk around on the earth

2
00:00:02,610 --> 00:00:04,709
Earth's gravity plus our body weight

3
00:00:04,710 --> 00:00:08,009
pulls us down to the earth and creates a

4
00:00:08,010 --> 00:00:09,839
force that's felt by our bones and

5
00:00:09,840 --> 00:00:12,508
muscles. the cells in our bones and

6
00:00:12,509 --> 00:00:16,319
muscles sense this force and use it as a

7
00:00:16,320 --> 00:00:19,259
stimulus to maintain bone and muscle

8
00:00:19,260 --> 00:00:23,339
health. in spaceflight there is an

9
00:00:23,340 --> 00:00:26,159
absence of gravity and the stimulus is

10
00:00:26,160 --> 00:00:29,518
absent. to reintroduce this we have to

11
00:00:29,519 --> 00:00:31,499
have them exercised on specialized

12
00:00:31,500 --> 00:00:34,709
equipment so we have to mechanically

13
00:00:34,710 --> 00:00:36,929

introduce the loading that's associated

14

00:00:36,930 --> 00:00:40,229

with Earth's gravity. we do this by

15

00:00:40,230 --> 00:00:43,319

having the astronauts wear a harness and

16

00:00:43,320 --> 00:00:46,499

be connected to a treadmill through

17

00:00:46,500 --> 00:00:49,019

bungee cords when they run on a

18

00:00:49,020 --> 00:00:51,029

treadmill on the International Space

19

00:00:51,030 --> 00:00:53,729

Station and we use specialized