
NASA
SPACESTATION
LIVE

1
00:00:10,790 --> 00:00:08,629
anyone who has ever

2
00:00:13,030 --> 00:00:10,800
suffered from back pain knows that it

3
00:00:15,110 --> 00:00:13,040
can be debilitating

4
00:00:17,430 --> 00:00:15,120
it turns out unfortunately that

5
00:00:19,590 --> 00:00:17,440
suffering back pain is not just a thing

6
00:00:21,349 --> 00:00:19,600
for those of us who are stuck on earth

7
00:00:23,189 --> 00:00:21,359
there are many long duration space

8
00:00:25,429 --> 00:00:23,199
station crew members who have complained

9
00:00:26,710 --> 00:00:25,439
of back pain during and after their

10
00:00:28,630 --> 00:00:26,720
space flights

11
00:00:30,630 --> 00:00:28,640
the good news is there is an experiment

12
00:00:32,950 --> 00:00:30,640
now underway that's looking into the

13
00:00:35,190 --> 00:00:32,960

cause my colleague lori meggs is at the

14
00:00:37,590 --> 00:00:35,200
marshall space flight center with more

15
00:00:43,670 --> 00:00:37,600
on some early results from the inter

16
00:00:46,630 --> 00:00:45,110
as kids are heading back to school we

17
00:00:47,990 --> 00:00:46,640
start thinking about those heavy

18
00:00:50,150 --> 00:00:48,000
backpacks they'll be carrying and how

19
00:00:51,750 --> 00:00:50,160
they could hurt their backs it's much

20
00:00:54,229 --> 00:00:51,760
the same for soldiers who have to carry

21
00:00:56,150 --> 00:00:54,239
heavy armor and equipment well a similar

22
00:00:57,910 --> 00:00:56,160
thing happens to astronauts when they

23
00:00:59,990 --> 00:00:57,920
return to earth they either return with

24
00:01:02,389 --> 00:01:00,000
back pain some even return with back

25
00:01:04,070 --> 00:01:02,399
injuries dr alan hargens a professor of

26
00:01:06,390 --> 00:01:04,080
orthopedic surgery at the university of

27
00:01:08,950 --> 00:01:06,400
california san diego is studying

28
00:01:11,270 --> 00:01:08,960
astronauts before and after flight to

29
00:01:13,109 --> 00:01:11,280
see why this is happening and what can

30
00:01:14,469 --> 00:01:13,119
be done about it to help even us here on

31
00:01:16,390 --> 00:01:14,479
earth

32
00:01:19,510 --> 00:01:16,400
so we're trying to understand what

33
00:01:21,030 --> 00:01:19,520
happens to the discs and the other

34
00:01:23,990 --> 00:01:21,040
spinal

35
00:01:26,630 --> 00:01:24,000
structures that are around the discs

36
00:01:27,590 --> 00:01:26,640
to help us understand

37
00:01:29,749 --> 00:01:27,600
why

38
00:01:32,390 --> 00:01:29,759

astronauts have

39
00:01:36,390 --> 00:01:32,400
back pain after flight and also

40
00:01:38,870 --> 00:01:36,400
herniation of their discs after flight

41
00:01:40,069 --> 00:01:38,880
that's odd right because there's no

42
00:01:42,149 --> 00:01:40,079
i guess weight-bearing they're just

43
00:01:44,230 --> 00:01:42,159
weightless floating around what

44
00:01:45,510 --> 00:01:44,240
yeah so when they're in space we think

45
00:01:47,749 --> 00:01:45,520
that the

46
00:01:50,149 --> 00:01:47,759
spine is very inactive

47
00:01:51,429 --> 00:01:50,159
it's not not like getting up in the

48
00:01:52,789 --> 00:01:51,439
morning

49
00:01:55,350 --> 00:01:52,799
getting out of

50
00:01:56,789 --> 00:01:55,360
bed and having to bear weight

51
00:02:00,550 --> 00:01:56,799
during the whole

52
00:02:05,429 --> 00:02:03,429
it has very little lows on it so what

53
00:02:09,109 --> 00:02:05,439
we're finding for example is there's a

54
00:02:12,229 --> 00:02:09,119
lot of muscle atrophy around the

55
00:02:13,350 --> 00:02:12,239
lumbar spine and also the cervical spine

56
00:02:15,190 --> 00:02:13,360
or the neck

57
00:02:16,229 --> 00:02:15,200
so how does this relate to folks on

58
00:02:17,110 --> 00:02:16,239
earth i'm sure

59
00:02:19,270 --> 00:02:17,120
you're

60
00:02:20,309 --> 00:02:19,280
just as much interested in helping

61
00:02:22,790 --> 00:02:20,319
problems

62
00:02:24,710 --> 00:02:22,800
on earth as as finding out what's going

63
00:02:27,830 --> 00:02:24,720

on with the astronauts so we think this

64
00:02:29,430 --> 00:02:27,840
applies to children who go to school

65
00:02:31,910 --> 00:02:29,440
with very heavy

66
00:02:34,949 --> 00:02:31,920
backpacks it's like an astronaut coming

67
00:02:36,390 --> 00:02:34,959
back from space and suddenly has a big

68
00:02:38,949 --> 00:02:36,400
load on their spine

69
00:02:41,830 --> 00:02:38,959
scott kelly back on mother earth after

70
00:02:45,190 --> 00:02:41,840
340 days in space

71
00:02:48,630 --> 00:02:45,200
so we are looking at the effect of

72
00:02:50,790 --> 00:02:48,640
these high backpack loads that the kids

73
00:02:52,470 --> 00:02:50,800
have when they go to school and how that

74
00:02:55,990 --> 00:02:52,480
affects their spine

75
00:02:57,030 --> 00:02:56,000
and also soldiers who wear heavy body

76
00:02:59,750 --> 00:02:57,040
armor

77
00:03:03,270 --> 00:02:59,760
and also heavy backpacks

78
00:03:05,990 --> 00:03:03,280
they have a lot of back problems

79
00:03:07,670 --> 00:03:06,000
after they have this exposure

80
00:03:08,390 --> 00:03:07,680
what have you found

81
00:03:11,190 --> 00:03:08,400
so

82
00:03:13,589 --> 00:03:11,200
i think the most important things that

83
00:03:16,309 --> 00:03:13,599
we have found is that there's a lot of

84
00:03:18,790 --> 00:03:16,319
muscle atrophy in the spine

85
00:03:21,270 --> 00:03:18,800
despite the fact that the astronauts are

86
00:03:24,390 --> 00:03:21,280
getting heavy exercise for example from

87
00:03:25,990 --> 00:03:24,400
the advanced resistive exercise

88
00:03:27,350 --> 00:03:26,000

device

89
00:03:30,390 --> 00:03:27,360
right now

90
00:03:33,430 --> 00:03:30,400
there's really no exercises as far as i

91
00:03:35,350 --> 00:03:33,440
know for the neck muscles so

92
00:03:38,309 --> 00:03:35,360
the neck muscles are

93
00:03:40,070 --> 00:03:38,319
losing even more muscle and they're

94
00:03:42,149 --> 00:03:40,080
recovering more

95
00:03:44,149 --> 00:03:42,159
slowly after space flight

96
00:03:46,550 --> 00:03:44,159
than the lumbar spine

97
00:03:48,149 --> 00:03:46,560
so once you get out of your subjects

98
00:03:49,509 --> 00:03:48,159
tested what do you think will happen you

99
00:03:51,589 --> 00:03:49,519
think this is going to continue that way

100
00:03:53,670 --> 00:03:51,599
do you think it's um it differs from

101
00:03:56,470 --> 00:03:53,680
person to person or do you think it

102
00:03:58,710 --> 00:03:56,480
there's a definite constant

103
00:04:00,949 --> 00:03:58,720
so what we're finding is is about half

104
00:04:03,910 --> 00:04:00,959
of the astronauts have significant back

105
00:04:05,190 --> 00:04:03,920
pain after their space flight

106
00:04:08,789 --> 00:04:05,200
so we're

107
00:04:10,869 --> 00:04:08,799
trying to develop better countermeasures

108
00:04:12,309 --> 00:04:10,879
to maintain the spine

109
00:04:15,190 --> 00:04:12,319
in space