
SPACE FLIGHT
POSES MANY
CHALLENGES
TO THE HUMAN
BODY IN SPACE

1
00:00:06,309 --> 00:00:03,990
space flight poses many challenges to

2
00:00:09,110 --> 00:00:06,319
the human body in space so the long-term

3
00:00:11,509 --> 00:00:09,120
goal of our research is to get to a

4
00:00:18,390 --> 00:00:11,519
place where we can maintain the health

5
00:00:21,670 --> 00:00:20,870
oxidative stress is when we have too

6
00:00:24,790 --> 00:00:21,680
much

7
00:00:27,269 --> 00:00:24,800
of reactive forms of oxygen in the body

8
00:00:29,910 --> 00:00:27,279
there are studies being done

9
00:00:31,029 --> 00:00:29,920
on astronauts collecting samples to

10
00:00:34,150 --> 00:00:31,039
measure

11
00:00:37,270 --> 00:00:34,160
changes in molecules that reflect

12
00:00:39,030 --> 00:00:37,280
oxidative damage the benefits of working

13
00:00:40,470 --> 00:00:39,040

with animals is that we're able to

14
00:00:43,830 --> 00:00:40,480
really get at

15
00:00:47,110 --> 00:00:43,840
test mechanisms for disease processes so

16
00:00:50,229 --> 00:00:47,120
by mechanisms what i mean is how it is

17
00:00:53,910 --> 00:00:50,239
we go from step a to step b to step c to

18
00:00:56,310 --> 00:00:53,920
end up with an adverse state when going

19
00:00:58,709 --> 00:00:56,320
into space when weightless

20
00:01:02,150 --> 00:00:58,719
there's bone loss muscle loss and the

21
00:01:04,310 --> 00:01:02,160
cardiovascular system deconditions

22
00:01:06,149 --> 00:01:04,320
having too much oxidative stress

23
00:01:07,510 --> 00:01:06,159
can lead to disease

24
00:01:09,350 --> 00:01:07,520
oxidative stress is thought to be

25
00:01:11,350 --> 00:01:09,360
involved in things like alzheimer's and

26
00:01:14,070 --> 00:01:11,360
cardiovascular disease

27
00:01:16,230 --> 00:01:14,080
[Music]

28
00:01:18,950 --> 00:01:16,240
there's a lot of interest

29
00:01:21,590 --> 00:01:18,960
in understanding what role oxidative

30
00:01:23,270 --> 00:01:21,600
stress has in some of the changes that

31
00:01:29,270 --> 00:01:23,280
occur

32
00:01:32,390 --> 00:01:29,280
we work with mice doing studies to get a

33
00:01:34,630 --> 00:01:32,400
better understanding of how

34
00:01:37,510 --> 00:01:34,640
those bone changes and other changes in

35
00:01:39,270 --> 00:01:37,520
the body occur in the space environment

36
00:01:41,830 --> 00:01:39,280
experiments that are done on earth to

37
00:01:45,590 --> 00:01:41,840
develop drugs or to understand disease

38
00:01:48,230 --> 00:01:45,600

processes on earth mice or rats are

39
00:01:51,830 --> 00:01:48,240
exposed to changes in their environment

40
00:01:53,990 --> 00:01:51,840
that simulate rodent research is is

41
00:01:55,990 --> 00:01:54,000
beneficial all these things can be

42
00:01:59,109 --> 00:01:56,000
studied in animals

43
00:02:02,230 --> 00:01:59,119
to get a better understanding of how the

44
00:02:04,550 --> 00:02:02,240
deficits occur in astronauts

45
00:02:07,030 --> 00:02:04,560
by studying these things like bone loss

46
00:02:09,510 --> 00:02:07,040
and muscle loss we gain further insight

47
00:02:11,190 --> 00:02:09,520
into how it's happening and also how to

48
00:02:14,470 --> 00:02:11,200
treat it and the way we treat it in