



SPINNING SCIENCE

Multi-use Variable-g Platform
Arrives at the Space Station

1
00:00:00,240 --> 00:00:05,819
We're looking to answer the question:
What is the effect of spaceflight on the

2
00:00:05,819 --> 00:00:13,650
host? The host here being the fruit fly
or *Drosophila* and also on a pathogen. So

3
00:00:13,650 --> 00:00:18,029
the bacteria actually is one that can
infect the fly very similarly to the way

4
00:00:18,029 --> 00:00:23,609
it would infect for example a human or
any other organism. The genetic makeup of

5
00:00:23,609 --> 00:00:29,010
the fruit fly is actually very similar
to humans. If you took the human genome

6
00:00:29,010 --> 00:00:34,260
and you looked at all the genes that you
know are important for function, in that

7
00:00:34,260 --> 00:00:40,649
category, in that library of genes, there
are 75 percent similarity between the

8
00:00:40,649 --> 00:00:47,280
human genes and the fruit fly genes. In a
box this size thousands of flies can be

9
00:00:47,280 --> 00:00:52,530
flown and brought back so that even if
you see an important difference that is

10
00:00:52,530 --> 00:00:59,579
small you can get statistically
significant data because you get 3,000

11
00:00:59,579 --> 00:01:06,990
flies or 4,000 flies coming back in a
box that size. We have a very nice new

12
00:01:06,990 --> 00:01:10,979
piece of hardware. The company Techshot,
we've been working together with them

13
00:01:10,979 --> 00:01:17,310
for the last few years in developing a
very capable piece of hardware. What's so

14
00:01:17,310 --> 00:01:21,450
special about the Techshot MVP is
really that there are two internal

15
00:01:21,450 --> 00:01:26,070
carousels inside the unit and each one
of them can produce anywhere from zero

16
00:01:26,070 --> 00:01:30,090
to two g. So it'll be the only
payload of its kind in the U.S. segment

17
00:01:30,090 --> 00:01:34,140
that can do this. The sample modules
themselves do transport to and from the

18
00:01:34,140 --> 00:01:38,759
station in the cargo vehicles but the
the payload itself the locker stays on

19
00:01:38,759 --> 00:01:44,240
board the station permanently. We are
interested in

20
00:01:44,240 --> 00:01:48,860
human exploration we want to go to moon
we want to go to Mars we want to explore

21

00:01:48,860 --> 00:01:55,040

the environment outside of low-Earth
orbit and to do that we need the help of

22

00:01:55,040 --> 00:01:59,060

these surrogate model organisms because
once we understand the genes and the

23

00:01:59,060 --> 00:02:02,600

pathways then we know what the
countermeasures are that we're working