



Space**to**Ground

1
00:00:03,020 --> 00:00:05,180
"HOUSTON, STATION ON SPACE TO GROUND."

2
00:00:05,180 --> 00:00:07,560
WELCOME TO SPACE TO GROUND, I'M LEAH CHESHIER.

3
00:00:07,560 --> 00:00:10,270
THIS WEEK, CHRIS CASSIDY CONTINUED RESEARCH

4
00:00:10,270 --> 00:00:14,920
INTO HOW THE BODY REPAIRS DNA DAMAGE IN SPACE.

5
00:00:14,920 --> 00:00:17,660
DUE TO INCREASED EXPOSURE TO RADIATION IN
SPACE,

6
00:00:17,660 --> 00:00:19,600
DNA DAMAGE CAN HAVE LONG-TERM

7
00:00:19,600 --> 00:00:21,490
AFFECTS ON ASTRONAUT HEALTH.

8
00:00:21,490 --> 00:00:23,360
THE GENES IN SPACE-6 EXPERIMENT

9
00:00:23,360 --> 00:00:26,070
EVALUATES THE ENTIRE DNA REPAIR PROCESS

10
00:00:26,070 --> 00:00:28,770
BY INDUCING DNA DAMAGES AND ASSESSING

11
00:00:28,770 --> 00:00:30,480
MUTATION AND REPAIR.

12
00:00:30,480 --> 00:00:32,180
ON TUESDAY, CASSIDY SET UP

13

00:00:32,180 --> 00:00:33,539
THE BIOMOLECULE SEQUENCER,

14

00:00:33,539 --> 00:00:35,180
A DEVICE THAT CAN SEQUENCE

15

00:00:35,180 --> 00:00:36,180
DNA IN SPACE,

16

00:00:36,180 --> 00:00:37,640
WITH A NEW FLOW CELL,

17

00:00:37,640 --> 00:00:39,440
WHERE THE SAMPLES ARE ADDED.

18

00:00:39,440 --> 00:00:41,230
UNDERSTANDING HOW DNA DAMAGE

19

00:00:41,230 --> 00:00:42,940
AND REPAIRS OCCUR IN MICROGRAVITY

20

00:00:42,940 --> 00:00:44,260
CAN CONTRIBUTE TO PROCEDURES

21

00:00:44,260 --> 00:00:46,079
TO PROTECT ASTRONAUTS NOT ONLY

22

00:00:46,079 --> 00:00:47,460
ON THE SPACE STATION,

23

00:00:47,460 --> 00:00:48,920
BUT ALSO ON FUTURE MISSIONS

24

00:00:48,920 --> 00:00:51,460
TO THE MOON OR MARS.

25

00:00:51,460 --> 00:00:55,219
IN THE JAPANESE AEROSPACE EXPLORATION AGENCY'S

KIBO MODULE,

26
00:00:55,219 --> 00:00:56,860
CHRIS CASSIDY WORKED ON HARDWARE

27
00:00:56,860 --> 00:00:58,920
THAT GIVES US A MUCH CLOSER LOOK

28
00:00:58,920 --> 00:01:00,011
AT THE THINGS WE CAN'T SEE

29
00:01:00,020 --> 00:01:02,240
WITH THE NAKED EYE.

30
00:01:02,240 --> 00:01:04,320
CASSIDY PERFORMED LENS COLLECTION

31
00:01:04,320 --> 00:01:07,350
FOR THE CONFOCAL SPACE MICROSCOPY SETUP AND CLOSEOUT,

32
00:01:07,350 --> 00:01:08,479
REMOVING THE LENSES FROM

33
00:01:08,479 --> 00:01:10,649
THE AQUATIC HABITAT IN KIBO

34
00:01:10,649 --> 00:01:11,689
AND RE-INSTALLING THEM TO

35
00:01:11,689 --> 00:01:12,939
THE MICROSCOPE SETUP IN

36
00:01:12,939 --> 00:01:14,880
THE JAPANESE EXPERIMENT MODULE,

37
00:01:14,880 --> 00:01:16,840
HELPING MAINTAIN THE MICROSCOPE ITSELF.

38

00:01:16,840 --> 00:01:18,840

AS IT IS CONFOCAL,

39

00:01:18,840 --> 00:01:20,929

THIS SPECIAL MICROSCOPE BLOCKS OUT

40

00:01:20,929 --> 00:01:22,119

OUT OF FOCUS LIGHT,

41

00:01:22,119 --> 00:01:23,610

PROVIDING A GREATER RESOLUTION

42

00:01:23,610 --> 00:01:25,069

ON THE SUBJECT OF INTEREST.

43

00:01:25,069 --> 00:01:27,389

THE CONFOCAL MICROSCOPE ALLOWS

44

00:01:27,389 --> 00:01:29,179

DATA TO BE OBTAINED REAL-TIME

45

00:01:29,179 --> 00:01:30,310

ON THE FUNDAMENTAL NATURE

46

00:01:30,310 --> 00:01:33,640

OF CELLULAR AND TISSUE STRUCTURES AND FUNCTIONS.

47

00:01:34,080 --> 00:01:36,259

AS WE LOOK FORWARD TO THE WEEKEND ON EARTH,

48

00:01:36,259 --> 00:01:37,969

IT SEEMS LIKE A GOOD CHANCE TO

49

00:01:37,969 --> 00:01:39,429

ANSWER NATALIE'S QUESTION ABOUT

50

00:01:39,429 --> 00:01:43,139

WHAT WEEKENDS ARE LIKE ON THE SPACE STATION.

51
00:01:43,140 --> 00:01:45,600
LIKE MOST FULL-TIME EMPLOYEES ON EARTH,

52
00:01:45,600 --> 00:01:47,000
ASTRONAUTS IN SPACE USUALLY

53
00:01:47,009 --> 00:01:48,310
GET WEEKENDS OFF TOO,

54
00:01:48,310 --> 00:01:50,649
AND ENJOY TALKING WITH FRIENDS AND FAMILY,

55
00:01:50,649 --> 00:01:52,389
TAKING PHOTOS OUT THE WINDOW,

56
00:01:52,389 --> 00:01:54,829
READING, WATCHING MOVIES AND MORE.

57
00:01:54,829 --> 00:01:56,389
HOWEVER, THERE ARE A COUPLE OF TASKS

58
00:01:56,389 --> 00:01:58,120
STILL ON THEIR SCHEDULES.

59
00:01:58,120 --> 00:01:59,600
ASTRONAUTS ARE STILL REQUIRED TO

60
00:01:59,609 --> 00:02:02,090
WORK OUT FOR ABOUT TWO HOURS EACH DAY,

61
00:02:02,090 --> 00:02:04,060
AND THEY ALSO TAKE SOME TIME TO TIDY UP

62
00:02:04,060 --> 00:02:07,200
THEIR HOME IN LOW-EARTH ORBIT.

63

00:02:07,200 --> 00:02:08,530

KEEP SENDING IN YOUR QUESTIONS