



1  
00:00:07,990 --> 00:00:06,070  
we spoke with don pettit at the human

2  
00:00:10,150 --> 00:00:08,000  
research program workshop a few weeks

3  
00:00:12,549 --> 00:00:10,160  
back now in one space shuttle mission

4  
00:00:15,829 --> 00:00:12,559  
and two six-month tours of duty on the

5  
00:00:18,310 --> 00:00:15,839  
space station totaling 370 days in space

6  
00:00:20,150 --> 00:00:18,320  
don pettit his hand has had his hand in

7  
00:00:22,230 --> 00:00:20,160  
almost every experiment and been a test

8  
00:00:24,710 --> 00:00:22,240  
subject for even more today we get his

9  
00:00:27,349 --> 00:00:24,720  
take on the not so glamorous but

10  
00:00:29,109 --> 00:00:27,359  
important side of research

11  
00:00:30,710 --> 00:00:29,119  
we're hearing a lot about what the

12  
00:00:32,389 --> 00:00:30,720  
researchers want but we're kind of

13  
00:00:34,310 --> 00:00:32,399

interested in what's it like on the

14

00:00:36,310 --> 00:00:34,320

other side of things they want you guys

15

00:00:40,869 --> 00:00:36,320

to volunteer for this research what's

16

00:00:43,270 --> 00:00:40,879

that like it comes with the job

17

00:00:45,590 --> 00:00:43,280

we're guinea pigs

18

00:00:47,590 --> 00:00:45,600

but that's part of our job if you want

19

00:00:49,190 --> 00:00:47,600

to fly a space station it's a scientific

20

00:00:49,990 --> 00:00:49,200

research lab

21

00:00:54,069 --> 00:00:50,000

you

22

00:00:56,229 --> 00:00:54,079

stuck with needles and

23

00:00:59,189 --> 00:00:56,239

and have instruments taped all over your

24

00:01:01,270 --> 00:00:59,199

body and have all the different kinds of

25

00:01:03,590 --> 00:01:01,280

blood and spit and urine and things like

26  
00:01:05,429 --> 00:01:03,600  
that collected and then after flight

27  
00:01:07,910 --> 00:01:05,439  
there's going to be biopsies muscle

28  
00:01:09,750 --> 00:01:07,920  
biopsies and and all kinds of other

29  
00:01:11,350 --> 00:01:09,760  
things like that and that's just part of

30  
00:01:13,830 --> 00:01:11,360  
the job

31  
00:01:15,030 --> 00:01:13,840  
but it's for a purpose and a great cause

32  
00:01:16,390 --> 00:01:15,040  
it is

33  
00:01:18,710 --> 00:01:16,400  
and

34  
00:01:21,590 --> 00:01:18,720  
you look at

35  
00:01:24,070 --> 00:01:21,600  
what we learned from early transoceanic

36  
00:01:25,429 --> 00:01:24,080  
exploration of vitamin deficiencies

37  
00:01:27,190 --> 00:01:25,439  
things like that

38  
00:01:29,910 --> 00:01:27,200

crew members didn't necessarily

39

00:01:32,310 --> 00:01:29,920

volunteer for these fades but they were

40

00:01:33,270 --> 00:01:32,320

very much part of

41

00:01:37,350 --> 00:01:33,280

the

42

00:01:40,230 --> 00:01:37,360

scientific discoveries of vitamins and

43

00:01:44,230 --> 00:01:40,240

their impact on your diet and we're

44

00:01:47,190 --> 00:01:44,240

reliving through that era again on space

45

00:01:49,350 --> 00:01:47,200

station where you take people and put

46

00:01:51,670 --> 00:01:49,360

them in an environment where the

47

00:01:54,389 --> 00:01:51,680

magnitude of gravitational forces have

48

00:01:56,550 --> 00:01:54,399

been changed by a factor of a million

49

00:01:59,190 --> 00:01:56,560

a factor of a million change any other

50

00:02:01,590 --> 00:01:59,200

environmental factor by a million and

51  
00:02:03,670 --> 00:02:01,600  
see how long it takes the nematodes to

52  
00:02:05,749 --> 00:02:03,680  
shriveled up and die and the fact that we

53  
00:02:08,150 --> 00:02:05,759  
can go there and come back basically

54  
00:02:10,469 --> 00:02:08,160  
unscathed is an amazing discovery in

55  
00:02:12,550 --> 00:02:10,479  
itself but there's all kinds of tertiary

56  
00:02:15,350 --> 00:02:12,560  
things that we are learning about human

57  
00:02:18,150 --> 00:02:15,360  
physiology simply by going there for

58  
00:02:21,030 --> 00:02:18,160  
long periods of time and coming home

59  
00:02:23,030 --> 00:02:21,040  
and and we are prying this information

60  
00:02:25,190 --> 00:02:23,040  
literally from the souls of those

61  
00:02:28,309 --> 00:02:25,200  
explorers that go off into the

62  
00:02:30,470 --> 00:02:28,319  
wilderness and and this is what's going

63  
00:02:33,190 --> 00:02:30,480

to give an incredible benefit to all the

64

00:02:35,670 --> 00:02:33,200

people on the planet that stay firmly

65

00:02:36,949 --> 00:02:35,680

rooted on terra firma

66

00:02:38,949 --> 00:02:36,959

you have not you've been to space

67

00:02:40,869 --> 00:02:38,959

station twice what did you learn

68

00:02:42,949 --> 00:02:40,879

physically about yourself and what keeps

69

00:02:44,070 --> 00:02:42,959

you coming and being a part of this

70

00:02:45,589 --> 00:02:44,080

program

71

00:02:49,589 --> 00:02:45,599

i feel like

72

00:02:53,030 --> 00:02:49,599

i was born to live and work in space it

73

00:02:55,509 --> 00:02:53,040

is the environment where i really excel

74

00:02:59,910 --> 00:02:55,519

at and it just

75

00:03:00,949 --> 00:02:59,920

it i there's just this glow inside of me

76

00:03:03,509 --> 00:03:00,959

that

77

00:03:04,630 --> 00:03:03,519

is intensified whenever i'm off of the

78

00:03:07,030 --> 00:03:04,640

planet

79

00:03:09,030 --> 00:03:07,040

of the research that that you performed

80

00:03:11,430 --> 00:03:09,040

i guess on yourself others drew blood or

81

00:03:12,630 --> 00:03:11,440

whatever

82

00:03:14,869 --> 00:03:12,640

was there anything that you've learned

83

00:03:16,710 --> 00:03:14,879

from that there are examples where we're

84

00:03:17,589 --> 00:03:16,720

collecting data

85

00:03:19,750 --> 00:03:17,599

and

86

00:03:21,350 --> 00:03:19,760

any one person's data

87

00:03:24,229 --> 00:03:21,360

by itself

88

00:03:27,030 --> 00:03:24,239

isn't so significant but you collect 30

89  
00:03:29,509 --> 00:03:27,040  
or 40 crew members worth of data over 10

90  
00:03:31,430 --> 00:03:29,519  
years and now you have a scientific data

91  
00:03:33,589 --> 00:03:31,440  
set and so there are many examples of

92  
00:03:35,910 --> 00:03:33,599  
that from nutrition experiments that

93  
00:03:38,470 --> 00:03:35,920  
we're doing where we're looking at high

94  
00:03:40,390 --> 00:03:38,480  
sulfur protein versus low sulfur protein

95  
00:03:43,589 --> 00:03:40,400  
on the diet and potential for

96  
00:03:46,789 --> 00:03:43,599  
decalcifying your bones and then you

97  
00:03:49,670 --> 00:03:46,799  
look at exercise protocols

98  
00:03:50,789 --> 00:03:49,680  
where you try to define a protocol that

99  
00:03:53,589 --> 00:03:50,799  
will do

100  
00:03:56,229 --> 00:03:53,599  
the best job of preserving your body

101  
00:03:58,789 --> 00:03:56,239  
your physiology your your cardiovascular

102  
00:04:01,350 --> 00:03:58,799  
system your skeletal system with the

103  
00:04:04,070 --> 00:04:01,360  
minimum amount of time and effort put in

104  
00:04:06,869 --> 00:04:04,080  
by the crew members uh so those are two

105  
00:04:09,350 --> 00:04:06,879  
examples the the eyeball studies that

106  
00:04:11,350 --> 00:04:09,360  
we're going on now and they nasa has

107  
00:04:12,630 --> 00:04:11,360  
this acronym called vip but what it

108  
00:04:15,110 --> 00:04:12,640  
means is

109  
00:04:16,949 --> 00:04:15,120  
you your eyeballs go squirrely when you

110  
00:04:19,670 --> 00:04:16,959  
get on orbit that we have a number of

111  
00:04:21,189 --> 00:04:19,680  
retinal maladies that turn up because

112  
00:04:25,110 --> 00:04:21,199  
you've been on art for long periods of

113  
00:04:28,150 --> 00:04:25,120

time and we're just now getting to

114

00:04:29,909 --> 00:04:28,160

the understanding of what's going on and

115

00:04:33,749 --> 00:04:29,919

possibly figuring out

116

00:04:37,670 --> 00:04:33,759

how to prevent that and that knowledge

117

00:04:40,310 --> 00:04:37,680

will spin off onto eye health for

118

00:04:42,469 --> 00:04:40,320

everybody on planet earth and and it

119

00:04:43,510 --> 00:04:42,479

will be amazing to see what comes from

120

00:04:45,270 --> 00:04:43,520

that

121

00:04:48,710 --> 00:04:45,280

what's next for you or do you have an

122

00:04:50,870 --> 00:04:48,720

investigation or are you going back i'm

123

00:04:52,950 --> 00:04:50,880

i'm still an active astronaut

124

00:04:54,710 --> 00:04:52,960

and so i do all the training i check all

125

00:04:57,590 --> 00:04:54,720

the boxes needed and i'm working a

126

00:04:59,830 --> 00:04:57,600

ground job dealing with

127

00:05:02,790 --> 00:04:59,840

keeping experiments and equipment