

flight, as yet. We do use a bicycle ergometer, not of this same type, exactly, in the laboratory preflight and postflight.

This is the tiny phonocardiogram microphone and this is an exerciser that was used in flight.

Over here you see the peak heart rates (fig. 12). It was predicted there would be very high heart rates which man would not be able to withstand. You can see the heart rates for each of the crewmen at the time of launch and reentry, and these were the time of highest heart rate, with the exception of the extravehicular activity, where we equaled some of these highest rates up in the 180 area you see here. You see that these vary greatly and there are some differences depending on whether an individual has flown once or twice, but, then, the changes may be modified by whether he is the command pilot or not, also.

Some other cardiovascular effects relate to this tilt table that we just saw.

This is typical tilt table response (fig. 13). This is a means of determining whether the heart has changed in its capability to respond to a particular stress, in this instance being a tilt table which does pool some blood in the lower extremities, and if space flight has caused some pooling in the extremities you would expect to see a difference.

Here, you see the blood pressure. This is the systolic blood pressure, the upper one—when you are told your blood pressure is 110/70, this is the 110, the systolic one. Here is the diastolic pressure across here.

NASA-S-66-11901

GEMINI PEAK HEART RATES, BEATS/MIN

GEMINI MISSION	LAUNCH	REENTRY
III	152-120	165-130
IV	148-128	140-125
V	148-155	170-178
VI-A	125-150	125-140
VII	152-125	180-134
VIII	138-120	130-90
IX-A	142-120	160-126
X	120-125	110-90
XI	166-154	120-117
XII	136-110	142-137

FIGURE 12