Mars - Year One : Marooned! by Brad Strickland and Thomas E. Fuller

Bags of Bones

On their trip to Mars, Sean and the other colonists had to exercise in a centrifuge that gave the same effect as gravity. They had to do this because being in microgravity for long periods of time tends to weaken bones and the heart and circulatory system. To see how bone density affects bone strength, You will try the Bags of Bones activity. This is easier on your system than smashing your own bones, but works the same way.

Your bones are not solid, but are made of connecting tissues inside that become less *dense* in microgravity after just a couple of weeks. That's why astronauts spend at least 2 hours a day exercising in ways that put a strain on their bones.

If people go to Mars, They'll have to do it there too, since the gravity there is less than Earth's. Otherwise, when they return, they may have major circulatory and skeletal problems, like strokes, heart attacks and tendencies to break bones easily.

Older people benefit from exercise in just the same ways. The more they exercise in ways that put stress on their skeleton and muscles, the less likely they are to develop osteoporosis and other bone related diseases, as well as strokes and circulatory health problems. Space research does help us back here on earth every day.

So, Sean and the others had better keep up with their exercise, because even on Mars, losing their Earth-developed bone mass and heart health is cause for alarm.