Tumor cells experience mechanical confinement in vivo during the process of metastasis specifically during intravasation into the blood stream from the site of the primary tumor, migration through small blood vessels and capillaries, and extravasation to secondary sites. There is a growing appreciation that physical confinement alters cellular functions, such as migration in cancer. Here, we investigate the effect of physical confinement on sarcoma cell cycle progression and migration. We hypothesized that physical confinement would have an inhibitory effect on sarcoma cell cycle progression caused in part by the restriction of cell area in confinement. To test our hypothesis, we fabricated and seeded cells expressing the FUCCI cell cycle indicator in microchannel devices. Cells were imaged for at least 18 hours and cell morphology, migration, and division were analyzed. Sarcoma cells displayed a significantly reduced ability to divide as the degree of confinement increased. Cell and nuclear area decreased as a function of decreasing channel width. Within each channel width, cells in the S/G2/M phase were larger than cells in the G1 phase, except in the 3μm wide channels, which showed the opposite trend. Cell migration showed a biphasic trend, with an increase from unrestricted migration to channel widths of 20 μm, but a decrease once channel widths grew smaller than 20 μm. Our results show that physical confinement greatly restricts sarcoma cells ability to progress through the cell cycle and we envision halting cell cycle progression and thus preventing division during confinement as a potential therapeutic benefit.