We investigate the swim pressure exerted by non-chiral and chiral active particles on convex or concave circular boundaries. Active particles are modeled as non-interacting and non-aligning self-propelled Brownian particles.The results of this study will be used to predict the mechanical equilibria of suspended fluid enclosures (generically referred to as ‘droplets’) in a bulk with active particles being present either inside the bulk fluid or within the suspended droplets. We show that, while droplets containing active particles and suspended in a normal bulk behave in accordance with standard capillary paradigms, those containing a normal fluid exhibit anomalous behaviors when suspended in an active bulk. In the latter case, the excess swim pressure results in non-monotonic dependence of the inside droplet pressure on the droplet radius. As a result, we find a regime of anomalous capillarity for a single droplet, where the inside droplet pressure increases upon increasing the droplet size. In the case of two interconnected droplets, we show that mechanical equilibrium can occur also when they have different sizes. We further identify a regime of anomalous ripening, where two unequal-sized droplets can reach a final state of equal sizes upon interconnection, in stark contrast with the standard Ostwald ripening phenomenon, implying shrinkage of the smaller droplet in favor of the larger one.