Fresh ground ostrich meat was packaged under high oxygen (O2), high nitrogen (N2), vacuum (VAC) and ambient air (AIR) atmospheres, stored at 4 +/- 1 degrees C and displayed under 1700 +/- 100 lux of fluorescent lighting for 9 days. The meat was evaluated for changes in typical shelf-life characteristics consisting of pH, color properties (CIE L*, a*, b*, and total color difference, Delta E), oxidative changes (thiobarbituric acid value and hexanal content) and bacterial counts (total viable cell, coliform, lactic acid bacteria, Enterobacteriaceae, Pseudomonas spp.) Initial meat pH was 6.16 and declined slightly during storage. TBA values and hexanal content were highest in O2 and lowest (P <= 0.05) in VAC and N2 atmospheres. Surface lightness (L*) and redness (a*) were highest in O2 packaging initially, decreasing (P <= 0.05) by day 9. Delta E of the ground ostrich increased during storage in only O-2 and AIR packaging. All packaging methods had generally similar effects on microbial outgrowth. Total aerobic bacteria attained > 10(6) CFU/g meat between day 3 and day 6. Ground ostrich meat was below saleable quality in less than 6 days based on all of the meat attributes. For O2 packaging however, quality based on lipid oxidation and color properties indicated a shelf-life of less than 3 days. Oxidation is likely the limiting factor for shelf-life of ground ostrich meat. (c) 2006 Elsevier Ltd. All rights reserved.