This study was performed to determine the effects of an exogenous enzyme on the tenderness of beef hanging tenders over a 3-day storage period. The objectives were to evaluate the Slice Shear Force, myofibrillar fragmentation index, level of lipid oxidation, percent cook loss, and sensory panel analysis of treated beef hanging tenders. Thirty-two Choice, whole beef hanging tenders were separated into 2 individual muscle pillars with the most uniform pillar being randomly assigned to one of four treatments; control, antioxidant, enzyme, and antioxidant+enzyme, with 8 replicates per treatment. The antioxidant treatment consisted of a 10% by weight solution of the Fortium®. The enzyme treatment utilized the Ribeye Tenderizer with Bromelain at 15% pump using a quarter concentration of the manufacturers recommended instructions. The antioxidant+enzyme treatment consisted of a combination of the antioxidant and enzyme treatments. Samples were injected using a single needle injection syringe, then placed in a vacuum bag. All samples were stored in a cardboard box and placed in a 4 °C cooler to simulate a storage and transportation environment for a period of 3 days. At the end of the storage period samples were removed and evaluated for Slice Shear Force, myofibrillar fragmentation index, lipid oxidation, cook loss, and sensory panel evaluation. Results showed a significant difference among treatments for cook loss percentage (P = 0.0098) with treatments ranking from the highest cook loss percentage to least being antioxidant+enzyme > antioxidant = enzyme > control with means of 33.39, 30.50, 28.18, and 25.69 respectively. Slice Shear Force results showed a significant difference (P = <0.0001) among treatments for Slice Shear Force with antioxidant+enzyme = enzyme < control = antioxidant with mean values of 7.288, 8.417, 18.388, and 19.399 respectively. Analysis of data for myofibrillar fragmentation showed a significant difference (P = <0.0001) in the amount of myofibrillar fragmentation between treatment samples with the enzyme and antioxidant+enzyme treatments showing the lowest myofibrillar fragmentation indexes, followed by the control treatment, and then the antioxidant treatment, with mean values of 15.62, 23.21, 47.24, and 115.73 respectively. Results from the sensory panel showed significant differences (P = <0.0001) between treatments for tenderness with panelists results showing a preferred order for tenderness (0 = extremely tough, 15 = extremely tender) being antioxidant+enzyme > enzyme > control > antioxidant, with mean values of 12.8, 11.6, 8.4, and 7.5, respectively. No significant differences (P > 0.05) found between treatments for the attributes of juiciness, flavor, and overall likability. Results for lipid oxidation showed a significant difference (P = 0.0043) between sample treatments with antioxidant = antioxidant+enzyme < enzyme = control and mean values for malonaldehyde recovered of 0.217, 0.259, 0.382, and 0.386, respectively. The data shows that the addition of an exogenous enzyme to beef hanging tenders can increase the perceivable tenderness of beef hanging tenders with little noticeable effect to other sensory eating attributes and can be used in a 3-day storage system.