

## The Effects of Hot- and Cold-boning on Sarcomere Shortening, Water-holding Capacity and Protein Solubility in Porcine Longissimus Muscle

Geun-Ho Kang, Min-Woo Park, Sang-Jo Lee, Han-Gyi Lee, Seong-Sil Moon,  
Seon-Tea Joo and Gu-Boo Park  
Meat Science Laboratory, Department of Animal Science,  
Gyeongsang National University

The objective of this study was to investigate the effects of hot- and cold-boning on sarcomere shortening, water-holding capacity and protein solubility in porcine longissimus muscle. A total of ten pigs were randomly selected at a commercial plant and the carcasses were split in half after slaughter. The longissimus muscle of the left side carcasses was dissected and chilled at 0°C after trimming of subcutaneous fat while the right side carcasses were served for cold-boning after chilling for 24 hrs. Temperature, pH and sarcomere length of the muscles were measured at postmortem 1, 3, 6, 12 and 24 hours. Drip loss %, cooking loss %, Minolta L\*a\*b\*, shear force and protein solubility were measured at 24 hr postmortem.

The pH of cold-boning samples was rapidly decreased whereas temperature and sarcomere length of hot-boning samples were rapidly decreased during 24 hrs of chilling. Hot-boning muscles showed significantly ( $p < 0.05$ ) higher pHu and shorter sarcomere compared to cold boning muscles because of cold shortening. However, there were no significant differences in drip loss %, cooking loss % and shear force value between hot- and cold boning samples. The samples of hot-boning showed lower Minolta L\* value and higher sarcoplasmic protein solubility compared to cold boning samples. These results suggested that the pale color changing of pork loin could be inhibited by hot-boning due to rapid chilling of muscle temperature although sarcomere length could be shorted because of cold shortening. Also results showed that hot-boning of pork carcass could have a high protein solubility without negative effects of water-holding capacity or tenderness of pork loin.