

## Does cutting of pork carcasses before rigor mortis affects the shape of products and meat quality ?

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**Introduction:** The chilling process is the most time-consuming part of the slaughter process and is known to influence the meat quality, e.g. tenderness and drip loss. Slaughterhouses in Denmark use blast-chilling tunnels (air temperature between -22°C and -18°C) followed by equalization until the core temperature is below 7°C. The aim of this investigation was to analyse the influence of cutting and deboning before rigor mortis on the shape and dimension of the product as well as the meat quality focussing on the middles.

**Material and method:** 16 carcasses were used in the investigation, and the time of killing was used as the starting point for all calculations of time. One side of the carcass was used as a control and was cut into the three main parts after 24 hours, while the other side was cut after either 3.5 or 5.5 hours. The difference in quality between the two sides was the result of the treatment.

The core temperature in the middles and ham was measured with Testo 134T, pH was measured with a glass electrode, the drip loss was measured using EZ drip loss methods, and colour was measured using the Japanese Pork Colour Scale. A sample from the M. longissimus thoracis (60 mm long) was used for Warner Bratzler shear force (WBSF). All WBSF samples were vacuum-packed and aged for 72 hours at 5°C before freezing. The shape and weight of the products cut after 3.5 and 5.5 hours were measured just after deboning and again after 24 hours to calculate loss and changes. The control was only measured at deboning 24 hours after killing.

**Results:** There was no difference in ultimate pH in M. semitendinosus or M. longissimus for the control and the cuts after 3.5 and 5.5 hours. The core temperature in the middles cut after 5.5 hours were almost identical to the control, but the temperature of the cuts after 3.5 hours was 13°C higher than the control. EZ drip loss in M. longissimus from both 3.5 and 5.5 hours after killing was 1.6% higher, and the meat was darker than the control. WBSF was 30 N higher in the deboned M. longissimus after 3.5 and 5.5 hours, the M. psoas major had shrunk 20%, and the belly was 4-5 cm shorter than the control.

**Conclusion:** Cutting and deboning before rigor mortis of the middles lead to poorer meat quality especially in the M. longissimus and M. psoas major. There was no difference in quality between cutting at 3.5 hours compared with 5.5 hours, even though the core temperature in the middles cut after 5.5 hours was below 7°C.

The M. longissimus samples cut after 3.5 and 5.5 hours were less tender than the control, probably due to shrinkage after deboning as seen in the M. psoas major.

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