

Effect of Resting Time on Sensory Quality and Loss of Meat Juice in Pork Beef and Pork Loin

Author: ...

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Background: ...

Objectives	Lean	Fatty	Pork
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Appearance	Lean	Fatty	Pork
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Subgroup 3

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## EFFECT OF RESTING TIME ON SENSORY QUALITY AND LOSS OF MEAT JUICE IN PORK, BEEF AND VEAL

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### Background

In many cookery books it is recommended to allow roasts to rest for at least 20 minutes before cutting out in slices. The explanation is that cutting out immediately after cooking will result in losing meat juice whereas resting for 20 minutes will keep meat juice inside the roast (Botorp *et al.*, 1999; Sarlin and Porter, 1996; Willan, 1992). Roasts are therefore expected to be more juicy if they are allowed to rest before cutting out in slices. As well as we know, the statement has not been scientifically challenged in relation to eating quality.

### Objectives

The purpose of the present study was to examine sensory quality and amount of meat juice lost after cooking for pork loin, beef loin and veal loin after cooking and after a resting period of 20 minutes.

### Methods

*Meat samples:* Ten pork loins (carcass weight: 73 to 79 kg; lean meat content: 58 to 64 wt%) were selected and aged for 4 - 5 days at 4°C. Beef loins (back part) from ten animals (carcass weight about 300 kg; Classifying O; colour and fatness 3) were selected and aged for 16-17 days at 4°C. Seven veal loins from seven animals not older than 9 month were selected and aged for 14 days at 4°C.

*Cooking methods and weight registration:* Loins were sprinkled with 5 g salt, weighed and cooked in a preheated convection oven, 180°C until the desired internal temperatures were reached (see table 2). Each roast was weighed after cooking and divided into two half roasts, weighed again, and one of the two roasts (randomly selected from front and back part) was cut into 6 mm thick slices immediately and the other roast was wrapped into foil and sliced after a resting period of 20 minutes. The roast was weighed after cutting out in slices in order to register the total loss of meat juice.

*Sensory evaluation:* 6 trained judges assessed the sensory attributes *appearance, flavour, juiciness and texture* shown in table 1. Ten repetitions for pork and beef and seven for veal were carried out.

Calculation: % cooking loss:  $100 \times (\text{raw meat weight} - \text{cooked meat weight}) / \text{raw meat weight}$ .

% meat juice lost:  $100 \times (\text{cooked meat weight} - \text{sliced meat weight}) / \text{cooked meat weight}$ .

*Statistical analyse:* Analysis of variance. P-values <0.05 were considered statistically significant.

### Results and discussion

The sensory analysis obtained for roasts cutting out in slices immediately after cooking and after a resting time of 20 minutes are shown in table 1. Raw meat weight, final internal temperature, cooking loss and loss of meat juice from end of cooking until after slicing is shown in table 2.

*Sensory evaluation:* Pork roasts rested for 20 minutes after cooking had a more homogeneous colour ( $P < 0.05$ ) and appeared more well done ( $P < 0.05$ ) than roasts cut out in slices immediately after cooking. Beef loins appeared more well done when resting 20 minutes compared to slices without a resting period ( $P < 0.01$ ). Like pork roasts veal roasts had a more homogeneous colour after 20 minutes resting period compared to slices without resting time ( $P < 0.05$ ). More over veal roasts without resting had a little metallic taste which was not found after a 20 minutes resting period ( $P < 0.05$ ). The other sensory attributes: moisture surface, bite resistance, juiciness, fibrous, crumbling, tenderness, meat flavour and acidulous taste were not affected of the resting period.

*Meat juice loss:* Cutting out in slices immediately after cooking resulted in lower amount of meat juice (all roasts, 4.0 %) compared to cutting out in slices after a resting period of 20 minutes (7.9 %;  $P < 0.0001$ ).

The results were very surprising since many cookery books recommend joints to rest 20 minutes before slicing to avoid loss of meat juice and thereby dry meat. Taken these results into account, there is no need to wait with cutting out the roasts in slices.

### Conclusions

Allowing roasts to rest 20 minutes before cutting out in slices resulted in a more homogenous and well done appearance than cutting out in slices immediately after cooking. Texture and flavour attributes were not influenced of a resting time after cooking. According to loss of meat juice a lower amount was lost from the roasts without a resting period compared to cutting out after a 20 minutes resting period. It was concluded that the advance of allowing roasts to rest 20 minutes before cutting out in slices was minimal according to eating quality and meat juice losing was not deteriorated by cutting out at once after cooking as described in many cookery books. In fact more meat juice is lost if roasts had a resting time. Taken these results into account, there is no need to wait 20 minutes to eat allowing the roasts to rest if you are hungry.

**Pertinent literature**

Botorp O., Jensen L., Dan F., Hansen F., Andersen J., Løvgreen K., Rickelsen B. (1999). *Kokkebogen*. Erhvervsskolernes Forlag, Odense.

Sarlin J. A., Porter D. (19). *The new Meat Lover's Cookbook*. A Simon & Schuster Macmillan Company, New York.

Willan A. (1992). *Look & Cook, Meat Classics*. Dorling Kindersley Limited, London.

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**Table 1.** Results from sensory analysis obtained from roasts of pork, beef and veal cut out immediately or after a resting period of 20 minutes. Scoring scale: 0 to 15, where 0 is no intensity and 15 is high intensity. Means within the same row and column with different letters were significantly different (P at least less than 0.05)

Sensory attributes	Pork		Beef		Veal	
	Without rest	20 min rest	Without rest	20 min rest	Without rest	20 min rest
<b>Appearance</b>						
Moisture surface	7.8	8.0	8.1	9.2	10.0	10.6
Colour (homogeneous)	9.2a	10.5b	7.5	8.1	7.3a	8.3b
Degree of cooking	9.2a	11.1b	5.5a	7.0b	5.5	6.5
<b>Texture</b>						
Resistance at first bite	4.9	5.0	4.8	4.7	4.8	4.7
Juiciness	9.2	9.6	10.2	9.8	10.2	10.3
Fibrous	2.9	2.2	3.4	2.6	2.9	2.3
Crumbling	3.6	4.3	1.0	1.6	1.1	1.3
Tenderness	10.8	11.2	10.5	10.5	10.7	10.7
<b>Flavour</b>						
Meat flavour	9.2	9.4	9.5	9.4	8.9	8.9
Acidulous	4.2	4.3	3.4	3.3	3.3	3.5
Metallic	0.8	0.8	0.4	0.4	0.5a	0.0b

**Table 2.** Raw meat weight, internal temperature, cooking loss and meat juice lost from end of cooking until after slicing.

	Pork		Beef		Veal	
	Without rest	20 min rest	Without rest	20 min rest	Without rest	20 min rest
Raw meat weight, g	1680 g		1880 g		1600 g	
Internal temp. after cooking	65°C		61°C		61°C	
Internal temp. 10 min after cooking	68°C		63°C		67°C	
Cooking loss	18 %		17 %		20 %	
Meat juice lost from cooking to cutting out in slices	4.3 %	8.4 %	3.7 %	7.5 %	4.1 %	7.8 %