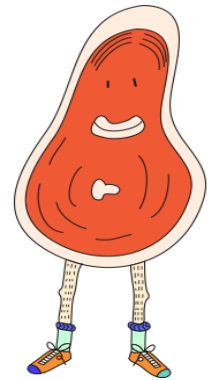


# Phosphate-Free and Sodium-Reduced Roasted Turkey Breast.

Prepared by : Maram Sbeihat and Heba Tome





why Na ?!

# Importance of sodium to body.

- regulating the body's electrolyte
- balance, preventing dehydration and maintaining
- many of the body's cellular functions
- Preventing nutrient deficiencies

“ Iodin VS Goiter “

# Why Na?!

**↑** blood pressure  $\longrightarrow$  cause of cardiovascular diseases

\* **62% of stroke**

\* **49% of coronary heart disease**

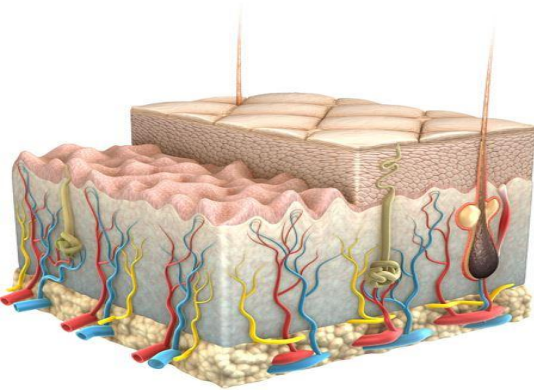
- **gastric cancer “H pylori”**
- **decreased bone mineral density**
- **possibly obesity**



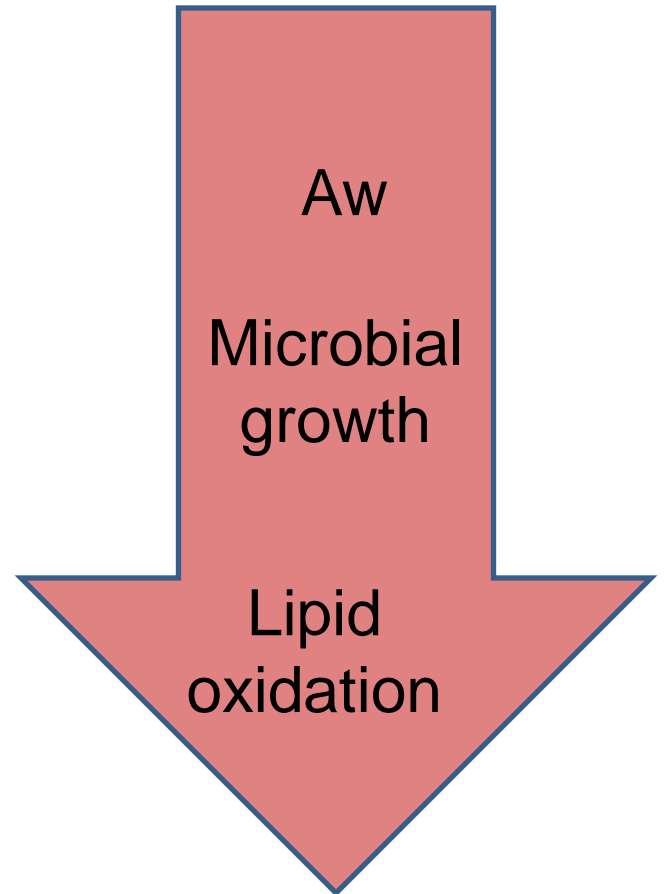
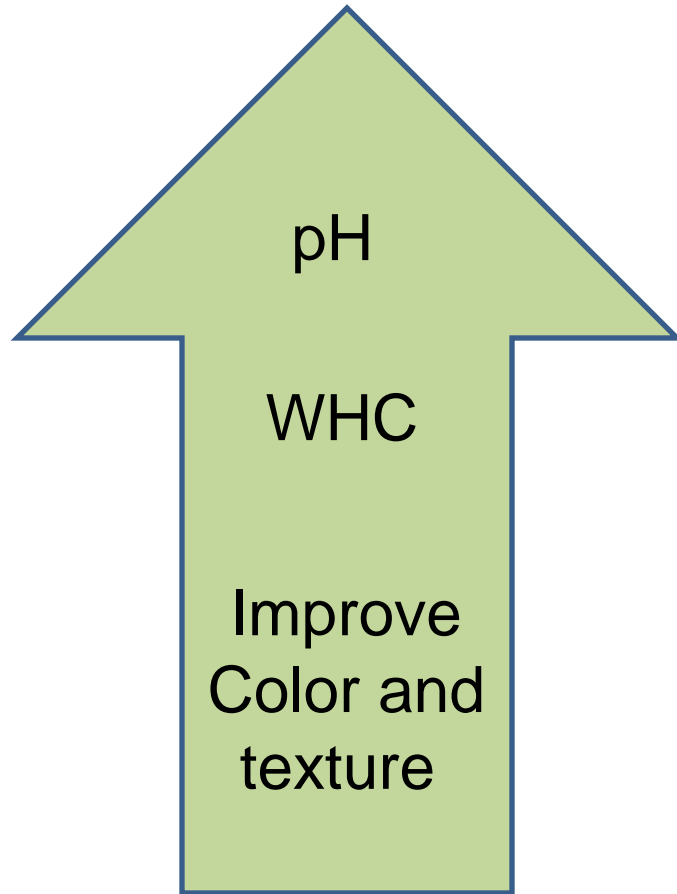


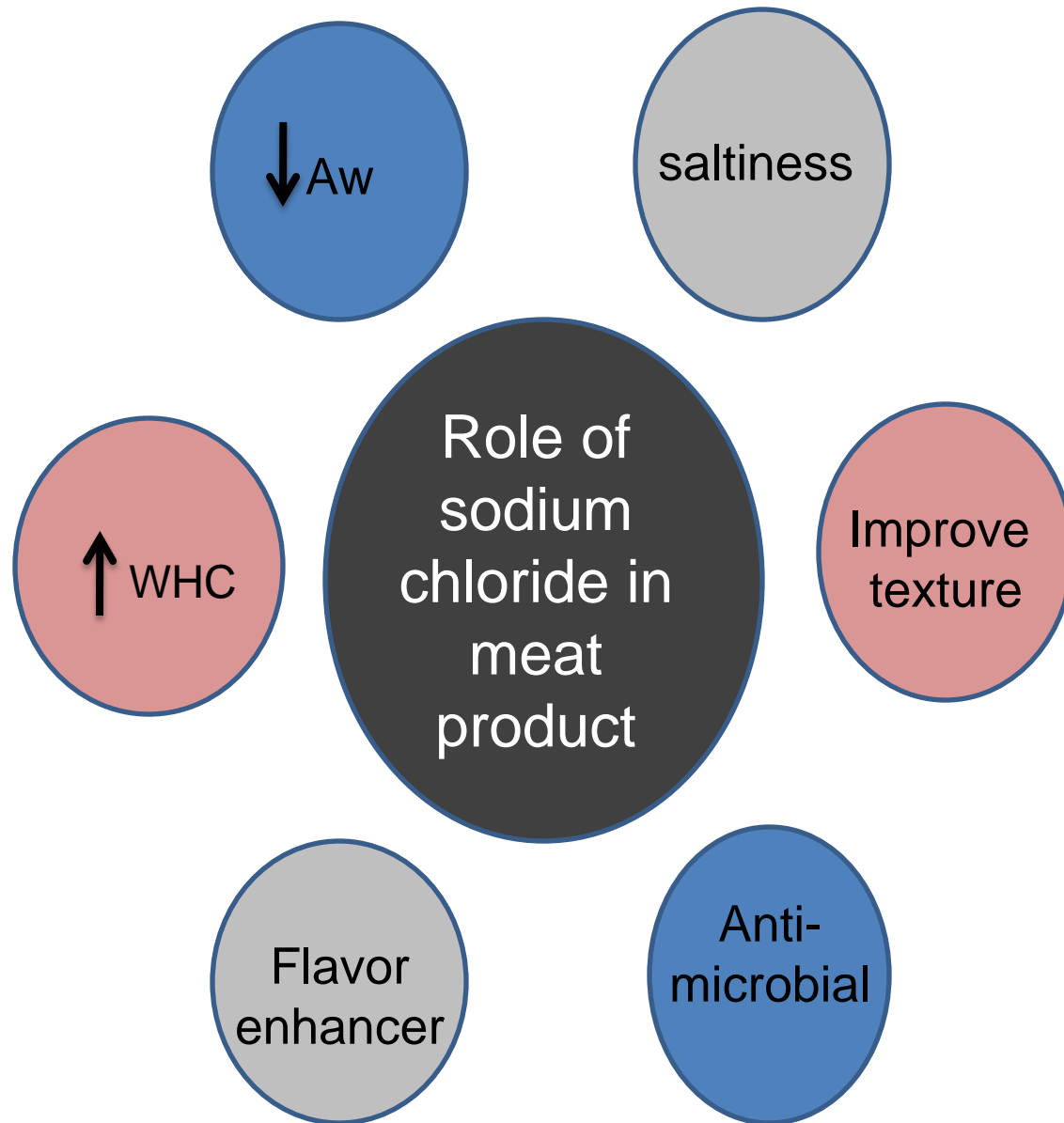
why **STPP** ?!

# Why STPP ?!



# Role of STPP in meat processing.







# **synergistic effect between sodium chloride & phosphate**

The contribution to ionic strength of polyphosphates has little effect in the presence of an overall level of 2% salt.

- The chloride ion is more important than the sodium ion for achieving increased water binding capacity.

# Material and Methods.

- 60 samples from turkey breast from the same batch (similar flock and breed)
- Samples should distributed into 4 groups (n=15/group) where each group has no significant differences in pH

	Group B1	Group B2	Group B3	Group B4
NaCl	100%	85%	70%	55%
KCL	0%	15%	30%	45%
STPP	0%	0%	0%	0
Sodium bicarbonate	100%	100%	100%	100%

# Methodology

- Sample preparation and labeling .



- Marination by using small scale vacuum tumbler.
- Storage at refrigeration 48 hours.



- Vacuum packaging



cooking (80°C, 20 m)



	B1	B2	B3	B4
Marinade uptake	16	17.9	17.8	16.5
Purge loss	3.15	1.1	2.1	1.8
Cooking loss	24.6	26.5	23.4	24.9
yield	84.8	84	89	86



# Sensory Evaluation

	B1 control	B2	B3	B4
Color	4.7	5	4.6	5.6
Juiciness	4.3	4.3	5	4
Saltiness	4	5.3	4.3	4.3
Degree of fatness	2.3	2.6	2.6	2.3
Overall acceptance	3.6	6.3	6	4.7
texture	6.3	5.3	5.7	6.6
average	3.9	4.4	4.3	4.2

# References

- 1-Theoretical aspects of water-holding in meat, E. Puolanne , Marjo Halonen.Department of Food and Environmental Sciences, University of Helsinki, Viikki .Finland
- 2-Global Sodium Consumption and cardiovascular Causes, D.Mozaffarian 2014
- 3-Gradual Reduction in Sodium Content In Cooked Ham,with Corresponding Change in Sensorial Properties Measured by Sensory Evalution and a Multimodal Machine Vision System Kirsti Greiff ,John Reidar Mathiassen, Ekrem Misimi, Margrethe Hersleth, Ida G. Aursand Published: September 30, 2015