











## **Process of Rigor**

- Circulatory system is no longer in existence
  - Muscles loses communication with external environment
- In muscles energy metabolism is shifted from aerobic to anaerobic
  - What happens as a result of loss of circulatory system and aerobic metabolism?







Time to Onset of Rigor			
	Species	Hours	
	Beef	6-12	
	Lamb	6-12	
	Pork	1/4–3	
1112	Turkey	< 1	
	Chicken	< 1/2	
	Fish	< 1	1



## Loss of Protective Mechanisms • No longer have the #1 temp control

- method
  - Results in rise in postmortem muscle temp
  - Heat generated by ongoing metabolism causes a rise soon after bleeding
  - Temp will eventually begin to decline



## Factors affecting postmortem changes and meat quality

 Stress – physiological changes such as heart rate, respiration, body temp, and blood pressure occur during the exposure of the animal to adverse conditions





























- Cold Shortening shortening at temps above freezing, but below room temp
  - Rapid release of Ca from damaged SR
  - Severe contraction = toughening
  - Seen in animals with little fat cover muscle chills to fast
- Heat Shortening shortening at temps above room temp
  - Rapid depletion of ATP
  - Results in rapid onset of rigor









