

The role of connective tissue in poultry meat quality

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Summary

In intramuscular connective tissue (IMCT) the main proteins are collagen and elastin. Polysaccharides form the ground substance with water. The IMCT is in three levels: epimysium perimysium and endomysium surround muscle, muscle fibre bundles, and individual muscle fibres, respectively. All levels are bound together to transmit the contractive force via ligaments to the skeleton causing movement.

Structurally, the most important part of IMCT is perimysium forming a continuous supporting network throughout the muscle. The strength of IMCT is based on collagen fibres that are basically inelastic but as a network provide the flexibility required for muscle locomotive function. Collagen molecules are bound together to form fibres of unlimited length. There are cross-bridges between the collagen molecule units and also between the collagen molecules. These cross-bridges determine the physical strength and heat stability of IMCT. The number and stability of cross-bridges increase with age.

Modern poultry is not tough, but the problem is increasingly the opposite. The collagen content of lean is 0.2-0.4 %. In fast-growing birds the collagen is immature resulting in low heat stability. Consequently, poultry meat is tender, but may turn fragile, even mushy. More attention should be paid to IMCT to avoid further weakening of poultry meat.