Standard operating procedure (EPA)

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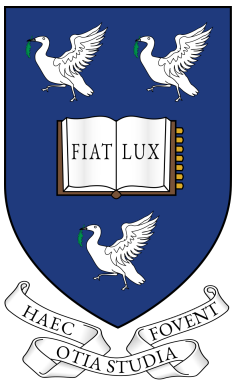

Equine Protein Atlas

Skeletal Muscle

Background

Skeletal muscle in horses is essential for movement, posture, and various functions, including mastication, which is controlled by the masseter muscle. The masseter, a powerful muscle located in the jaw region, plays a critical role in chewing and is anatomically connected to the submandibular region, where it influences the positioning of surrounding soft tissues and lymph nodes. Ageing affects skeletal muscle through a process known as sarcopenia, characterized by a gradual loss of muscle mass, strength, and function. In older horses, the masseter may show signs of atrophy, leading to reduced chewing efficiency and potentially contributing to dental wear or difficulties processing feed. Additionally, age-related changes in muscle composition, such as decreased fiber elasticity and increased fatty infiltration, may alter the structural dynamics of the submandibular area, potentially impacting its function and resilience. Maintaining adequate nutrition and regular dental care can help mitigate some of these ageing effects on the masseter and related regions.

Equipment needed

1. Scalpel
2. Tweezers
3. Liquid Nitrogen
4. 10% Formalin

Methods

1. Collect age and sex-matched equine heads from abattoir
2. If this is not possible use equine dentition to determine age and sex
3. Sample of blood can also be collected to aid in sex-determination
4. Pinch skin with tweezers and peel with scalpel
5. Cut a small square in the masseter to reveal skeletal muscle
6. Use a scalpel to cut off muscle for proteomics analysis
7. Snap freeze with liquid nitrogen
8. Store at -80°C
9. Cut more skeletal muscle in the same way for histological processing
10. Store in 10% Formalin