D-25 Functional anatomy of the smooth apterial muscles and the striated subcutaneous muscles of the domestic turkey, *Meleagris gallopavo*

K N de Silva[1,2], D G Homberger[1]
([1]*Dept. of Zoology and Physiology, Louisiana State University, Baton Rouge, Louisiana, USA,* [2]*Present address: Dept. of Zoology, Univ. of Sri Jayewardenepura, Nugegoda*)

In birds, the skin musculature comprises both smooth muscles, i.e. feather and apterial muscles and striated subcutaneous muscles. The function of the feather muscles has been studied extensively. However, the apterial muscles and the subcutaneous muscles have received very little attention. This study is therefore, a contribution towards understanding the relationship between smooth and striated subcutaneous muscles and between feather and apterial muscles.

The micro-dissection of the subcutaneous structures of the domestic turkey, *Meleagris gallopavo*, revealed a complex system with several distinct layers of connective tissue and smooth and striated musculature. The smooth feather muscles and apterial muscles form a continuous layer and are separated from the underlying constrictor layer by the lamina elastica and an interlarded Fascia superficialis. The constrictor layer is a distinct layer of connective tissue which incorporates striated muscles that have no attachments to any bony elements. Parts of some striated muscles (partes dermis) of the constrictor layer attach to and exert a pull on the superficial fascia itself and serve to tighten or readjust the position of the skin. Certain other fibre bundles (partes pennarum) attach to large feather follicles of the ventral cervical and pectoral feather tracts respectively. These attachments to the feather follicles do not serve to erect or depress the individual feathers because their muscle fibre direction differs from that of the smooth feather muscles and the plane of motion of the feathers.

Instead, the striated subcutaneous muscles complement the smooth apterial muscles in moving entire feather tracts with large feathers.

Financial assistance in the form of a grant-in-aid by the Louisiana State University Chapter of Sigma Xi and the Louisiana State University Foundation Fund "Functional Morphology of Birds" is acknowledged.