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**Moult Related Changes in Wound Healing Responses
in the Spider. *Pardosa astrigera***

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The rigid cuticles of a spider limits the growth of the body, thus actual growth can occur through the moulting process. The integument of cephalothorax in the wolf spider, *Pardosa astrigera*, consists of outer cuticle and a epidermal cell layer. For the purpose of understanding the differences in wound healing responses between "with-moulting" and "without-moulting" the experiment was carried out inducing the artificial wounds on the dorsal surface of the cephalothorax three days before moulting by puncturing a sharp needle. By light and electron microscopic examination, it has been revealed that moulting of the spider shortened the recovering period, and wound healing responses were accelerated during this period. Therefore, migration and reconstruction of the epidermal cell layer, which only accomplished in 10 to 16 days after wounding at "without-moulting" individuals, were detected within 3 days at "with-moulting".

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**Fine Structure of the Silk Producing Apparatus
in the Garden Spider, *Argiope bruennichii***

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The silk organs of the araneid spiders are the most complicated and differentiated thread producing organs in animals. Each kind of the silk glands secretes different types of threads and they are used to different purposes. By the light and electron microscopical observation, distribution of the spinning apparatus and its fine structure were revealed. The silk glands of the garden spider, *Argiope bruennichii*, were composed of 5 kinds of large silk glands (major ampullate glands, minor ampullate glands, tubuliform glands, aggregate glands, flagelliform glands) and 2 kinds of small silk glands (pyriform glands and aciniform glands). The major ampullate glands were connected with the spigots (large spinning tubes) of the anterior spinnerets, however minor ampullate glands were connected with the middle spinnerets. Among 3 pairs of the tubuliform glands, one pair connected with the spigots on the middle spinnerets and two pairs with the posterior spinnerets. Moreover, sticky capture threads were originated from a characteristic "triad" structure, the arrangement of three spigots made by one flagelliform and two aggregate glands. And it has been also revealed that the pyriform glands on the anterior spinnerets and the aciniform glands on the middle and posterior spinnerets were connected with small spinning tubes(spools) respectively.