The striated annular fiber in an ocular muscle has been written by many authors, namely, by BATAILLON (1891), MÜNZER (1893), ASKAZY (1898), THULIN (1908), DONS (1915), SCRIBAN (1915, 1916, 1921), M. HEIDENHAIN (1917), SLAUCK (1921, 1922–23), SCHÜTZ (1922), SCHWARZ (1925), VOSS (1932) and WOHLFART (1932).

WOHLFART's reports on this subject are particularly detailed. According to him the striated annular fiber occurs in any normal muscles.

While observing the muscle spindle of the ocular muscle of the cat and guinea-pig I accidentally found the striated annular fiber. This result of my observation is almost identical with that of WOHLFART's.

Observation.

Serial sections of four recta and two oblique muscles of the eyeball of the cat and the guinea-pig were used as materials for observation, and some striated rings were found in every muscle.

Fig. 1. Four ring-figures (×) are visible. 800×. M. obliquus superior of cat.
The striated ring is easily observable in preparations stained by HEIDENHAIN's hematoxylin. Hematoxylin-eosin stained preparations do not suit the purpose.

Striated rings resemble each other in shape. Each ring is seen near where the nerve enters into the muscle.

In cross-sections of muscle we can find the ring figure formed around the muscle fiber. The ring figure consists of transversely

![Fig. 2. Magnified figure of fig. 1. 1600×.](image1)

![Fig. 3. Space between ringfibrils and longitudinal fibrils is not extensive. 1000×.](image2)
Striated Annular Fibers in Ocular Muscle

striated myofibrils. The transverse striation on the ring figure is very well defined and its anisotropic portion is radiated. The ring-figure lies under the sarkolemm (Fig. 2 a. 3).

In cross-sections there is some space seen between the ring-figure and the longitudinal fiber. This space is certainly an artefact.

In my material one longitudinal fiber has only one ring-figure. The ring-figure is 30—60 μ long, and its wall 2—3 μ thick. It varies in diameter in its different parts — 100 μ or more in the thickest part and 30 μ or less in the most slender part.

By keeping the eye on the end portion of the ring in a cross-section, one can see some slanting fibers in the peripheral portion of the longitudinal muscle fiber. These fibrils run into the ring-figure. From this fact I presume, that the striated ring-figure is not isolated from the longitudinal muscle fiber within, and the fibrils in the ring-figure continue to the longitudinal muscle fiber.

Summary.

1. The ocular muscles have ring-figures normally.
2. All ring-figures are identical in pattern.
3. The fibrils of the ring-figure are continuous to the fibrils of the longitudinal fiber which is surrounded by the ring-figure.

内 容 自 抄.

猫及びモルモトのすべての眼筋の中には、横紋を有する輪走筋原線維からとりまかれている筋線維がある。このような像は Heidenhain の Hematoxylin で染色した標本では苦心せずに見られるが、Hematoxylin-eosin 染色の標本では観察するのに少し骨がわれる。

このような像は神経の進入部の附近に多い。

輪走の筋原線維と筋走の筋原線維とは連絡しているように思われる。

References.

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