activity within the renal tissue of *Helostoma* in general shows good agreement with the distribution of this enzyme within the kidney of the domestic fowl[3], this process must no doubt be considered of more general importance.

Zusammenfassung. Eine positive Cholinesterase-Aktivität in der Niere von *Helostoma temmincki* wurde in den Bowmanschen Kapseln gefunden. Die Tubuli waren frei, aber der Ureter zeigte eine positive Reaktion sowohl für Cholinesterase wie auch für Pseudocholinesterase.

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The Effect of Early Weaning on Spermiogenesis in Adult Rats

Infant rats can be weaned from the mother animal and can live independently when aged 15–18 days postnatally, while normally they are weaned on about the 30th postnatal day[1]. It was shown in previous papers that early (premature) weaning shortens the lifespan of female rats[2], decreases fertility[2] and their ability to learn (elaborate conditioned reflexes) when aged 8 months is weakened[3], although their final body weight and appearence are unaffected.

In order to throw further light on the impaired fertility of prematurely weaned rats, the testicles of rats of the Wistar B-Konárovice strain were examined in animals weaned normally (day 30) and prematurely (day 18). They were raised on a standard diet[4], did not come into contact with female animals, and were killed by decapitation when aged 6 or 12 months.

It was found that in 6 months old rats the testicles of both groups were normal (Figure 1 and 2). In animals aged 12 months, however, severe degenerative changes are found in the prematurely weaned group, the spermiogenic epithelium being impaired or even absent and substituted by Sertoli cells. Figure 1 shows that the width of the spermiogenic tubules is also smaller. No impairment of spermiogenesis was found in normally weaned animals.

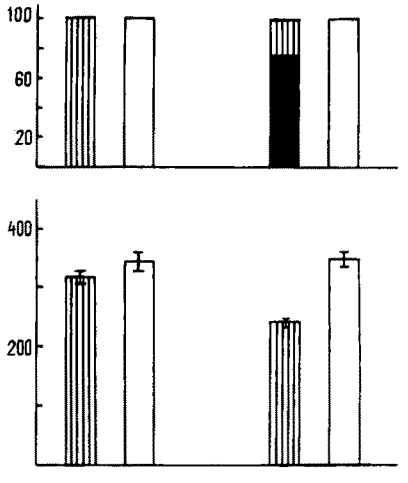
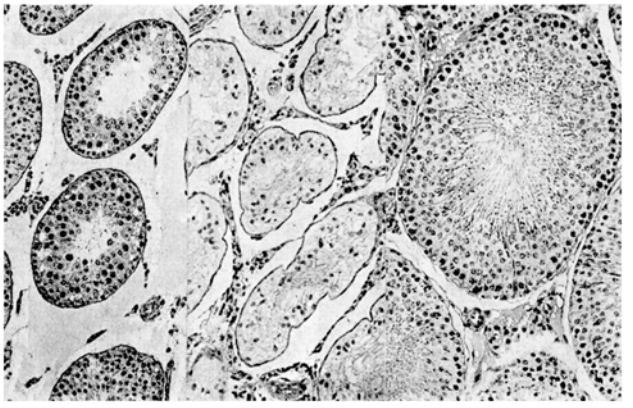


Fig. 1. *Upper half:* Frequency of occurrence of degenerative changes in testicles. First two columns: rats aged 6 months. Second two columns: rats aged 12 months. Shaded: prematurely weaned rats. White columns: normally weaned rats. Black part of columns: % of animals with impaired spermiogenesis. Statistical significance in rats aged 1 year: $p = 0.0015$ (calculated according to Fisher[5]. Ordinate: %, abscissa: as described. *Lower half:* Average width of spermiogenic tubules in relative figures. Columns as in upper part. Vertical lines indicate SE. Ordinate: relative scale of micrometer. Statistical significance for rats aged 12 months: $p < 0.005$ (t-test).



a b c

Fig. 2. (a) (b) Pathological changes in prematurely weaned rats. (a) severe inhibition of spermiogenesis, which only goes up to spermatocytes and spermatides; pyknosis and karyorrhexis of spermatocytes. Oedema in the interstitium. (b) Disappearance of spermiogenic epithelium and its substitition by hyperplastic Sertoli cells. (c) Testicles of normally weaned rats. Normal spermiogenesis. HE, × 105.

Our experiments thus show that premature weaning causes impairment of spermiogenesis in adult animals which cannot be demonstrated earlier in life (at 6 months). How far this is related to impairment of fertility in prematurely weaned female rats, which had prematurely weaned males as partners, will have to be elucidated.

Zusammenfassung. Junge, vorzeitig (18 Tage nach der Geburt entwöhnte Ratten) zeigen im Alter von 12 Monaten Schädigungen im spermiogenen Hodenepithel. 12 Tage später entwöhnte Ratten entwickeln sich normal. Die beobachteten Schädigungen treten im Alter von 6 Monaten noch nicht auf.

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