

LATVIJAS UNIVERSITĀTES SALĪDZINĀMĀS ANATOMIJAS UN
EKSPERIMENTĀLĀS ZOOLOĢIJAS INSTITŪTA DARBI
PUBLICATIONS
OF THE INSTITUTE OF COMPARATIVE ANATOMY AND
EXPERIMENTAL ZOOLOGY OF THE LATVIAN UNIVERSITY

№ 51

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Five Years Experiences with
a new „Rejuvenation“-Method

R I G A

1935

MONATSBERICHTE

I. Jahrgang. 1935.

September.

INSTITUTUL PENTRU STUDIUL ȘI COMBATAREA BĂTRĂNETII. INSTITUT FÜR ALTERSFORSCHUNG UND ALTERSBEKÄMPFUNG.

Rumänien. Chișinău. Str. Unirii, 20.

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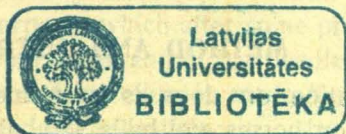
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Tipografia Uniunii Clericilor Ortodocși din Basarabia.

1935.

[Nachdruck: Armijas spiestuve, Rīgā, Muižas ielā 1.]

FIVE YEARS EXPERIENCES WITH A NEW «REJUVENATION» - METHOD.

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Eingegangen 20. IX. 1935.

The purpose of the present paper is to summarize experiences with a new traumatic „rejuvenation“ -method accumulated during the last five years, mostly by the author himself.

Basing on the results hitherto obtained in the struggle against the symptoms of senility by transplantation of gonads and by ligature or vasectomy of the seminal ducts the author of the present article endeavoured about five years ago to find a new way in this field of researches which is of so great importance theoretically as well as practically. The favourable results of the rejuvenative operations performed till now have been attributed by most investigators to the regenerative processes in the senescent gonad. In my experiments a similar regeneration was to be induced by a traumatic intervention. If the „rejuvenation“ depends on the increase of the Leydig interstitial tissue (*Ancel, Benoit, Bouin, Lipschütz, Sand, Steinach*, and others) the destruction of a part of the testicular tissue was to provide a stimulus and room for this increase. If however the regenerative influence proceeds from the generative part of the gonad (*Champy, Harms, Kyrle, Pézard, Plato, Romeis, Schinz* and *Slotopolsky, Stieve, Tiedje, M. Zawadowsky*, and others) the tearing up of a number of tubules might suffice — according to the experiences obtained by vasoligation and vasectomy — to bring about the regeneration of the epithelium.

Experimenting on animals during several years had yielded so favourable results that I dared to take the risk and to try this simple and harmless method on man. This added considerably to the exactness and depth of the knowledge obtained.

METHOD AND INSTRUMENTS.

The operation on dogs is performed under a slight morphine narcosis, that on horses and bulls without narcosis. On all animals the local anaesthesia is effected by a gradual injection of I per cent novocaine into the scrotal integuments, the albuginea, and the testicular parenchyma, in the area of operation. The instruments used are preparation needles strongly bent at the end, and sharp-pointed probes O. 8 — 1,5 mm thick. The puncture is made into the ventral side of the scrotum, on dogs into its posterior third, on horses into its middle.

The point of the needle is introduced perpendicularly into the testicular perenchyma through the scrotum and the tunica albuginea which offers a variable resistance. Yet almost immediately after the perforation of the tunica the instrument follows the cranial direction to the bottom of the testicle. The tearing of the parenchyma is effectuated through quick tearing movements, the needle being not only turned round its axis, but also pushed by jerks to the right and the left, as though conically rotating. The same tearing movements are repeated when the instrument is gradually pulled out about one centimetre at a time.

In order to prevent the obstruction of the inner excretory ducts of the testicle the operation is always performed in the periphery, not in the vicinity of the rete testis. Both testicles are treated in the same way. Before and after the operation the skin of the scrotum is overspread with iodic tincture strongly diluted with 70 per cent alcohol; after the operation the two punctures, often hardly visible, are covered with collodion wool.

In principle the technique of the operation on man corresponds to that of the operation on animals. If the scrotum is contracted, a relaxation is obtained by the application of a hot water compress during a few minutes, which practice was introduced by *Benjamin* in 1925. The puncture on the boundary of the second and the third third of the testicle is made with an inflected needle 0,8 mm thick after a preliminary anaesthesia by injection of about 2—3 ccm. of 1 per cent novocaine (with 1:10000 suprarenine) per testicle. The introduction of the needle is effectuated gradually, with frequent interruptions and injections of some drops at the same time. When performed in this way the operation is almost quite painless. In most cases I applied even a simpler method of operation. In order to avoid the repeated perforations I use the same hypodermic needle for the injection of the anaesthetic and, immediately after the injection, for the operation itself. The needle must only be sufficiently thick (0,8—1 mm.) and long, and must be bent to answer the purpose, which after some practice is easily done. The bayonet-shaped bent of the end of the needle has proved to be the most adequate. When the injection is made the syringe is separated from the needle inserted in the testicle; in order to avoid haemorrhage the cleaning-wire of the needle is pushed into the canal, and the tearing-up of the parenchyma can begin in the same way as has been described in connection with the operation on domestic animals. At all my operations not more than about one fifth of the parenchyma was worked upon. The tearing-up properly spoken lasted $\frac{1}{2}$ —1 minute per testicle.

During the operation in the parenchyma there appears either no blood at all or a quite minimal quantity may ooze through the hypodermic needle, if the latter is not tightly enough stopped up. When the instrument is taken out a few drops of blood appear on the skin of the scrotum, but very soon this slight bleeding ceases of itself owing to the contraction of the punctures. The collodion wool falls off in a few days. The patient may be dismissed directly after the operation, the treatment being ambulatory. It is advisable to walk as little as possible during the first two days following the operation, for during that period the testicles and epididymis are usually (but not necessarily) much swollen and tender, and a dull pain is felt in the groins and the lumbal region. In three days or even sooner these post-operation phenomena vanish.

R E S U L T S.

By experiments on many dogs (see the Index of Literature at the end of this article) it was found that our operation may very often exert a favourable rejuvenating influence on the colouring of gray patches and on the thickness of the coat of aging animals. Another sequel of this method of operation is the disappearance of, or at least an amelioration in, such symptoms of senility as impotentia coeundi et generandi and sexual indifference, the smell of the senile coat, deficiency of hearing and of sight peculiar to old age, dim, tired expression of the eyes, physical sluggishness and weakness, tremor in the legs, weakness of the bladder (incontinentia urinae) constipation, somnolence, asthmatic respiration, hoarseness, and nervous excitability. Desire for food, watchfulness, olfaction, and endurance in hunting can be improved to a considerable extent, even bringing the old animals to the level of young ones.

In the cases that were longest under my observation the favourable effect of this new method of rejuvenation lasted for about 5 years without any apparent signs of decline (excepting a slight dimness of the eyes in the case of one of the dogs). After the operation the various infirmities of old age did not disappear simultaneously but in a certain order. It was also in individually different ways that the animals were influenced in respect to their aptitude for improvement and to the order in which the infirmities of senility disappeared. In the case of one dog increased sexual excitability together with full potency appeared immediately after the operation, while in the case of another dog a powerful flaring up of the sexual activity was at first followed by its weakening. It was only about one year and a half p. o. that a strengthening of the sexual capacities began to show.

In the case of the first animal other improvements were observed in the following sequence: vanishing of the asthmatic respiration (4 weeks p. o.), watchfulness (3 months), desire for food (3 months and a half), inclination to bite (7 months and a half), normal voice (8 months), acuteness of hearing and sight (8 months and a half). It was not before 1 month and a half that the second dog lost his asthmatic respiration, while his voice regained its normal clearness after 3 months and a half.

Essentially analogous results were obtained by experiments on cattle. The operation was performed on two farm-bulls of ten years and a half and twelve years and a half of the brown Danish race. When only ten years old the younger bull failed as a breeding-animal his teeth became loose, loss of desire for hard food, loss in weight, shakiness and stiffness of the legs appeared, and the animal became quite indifferent to the outer world. The crisp mane and the neck-hump were gone. By our operation performed in October 1932 all the indicated infirmities could be successfully contended against, so that very soon the bull was able to compete in every respect (and also in sexual vigour) with a farbull of 5—6 years. In the following breeding-season this bull produced 47 quite healthy descendants. Special stress must be laid on the fastening of his teeth in the alveoles, on the high reproductive capacity, on the reappearance of the crisp mane and the neck-hump and of the wild, indomitable temperament of his young years. This bull, now 13 years old, about one ton in weight, leaps and jumps sometimes in the pastures like a young calf. All these improvements are maintained up to the present day, i. e. for two years and a half, without any change for the worse and in several respects have even been extended.

The other bull reacted in a similar manner. By the operation performed in 1933 he regained the libido and the sexual power; his appetite increased two-and threefold (he eats now 15 per cent more than the norm, and will soon become too heavy), his power of mastication is improved, his glossy coat and crisp mane of three years ago are restored together with the bright eye and the quick elastic gait.

The results of my operations on 3 horses were also quite encouraging. Thus by our operation a 14 year old Oldenburg stallion regained the sexual power so that in the rutting season of 1932 he served eighteen mares, and twenty-eight mares in 1933. He gained in weight 60 klg. in the three months following the operation. Despite his 17 years he remains strong, of lively temperament, and well in form, and continues to produce numerous and healthy offspring. Another 23 year old stallion that had grown very lean, but notwithstanding his age had not lost his sexual vigour was kept under observation during the short

period of one month and a half. He not only gained in weight about 20 kg. but his rather shaggy fur began to give way to a new glossy coat. The whole carriage and action of this animal attest to his increasing vitality. During the 4 months since his operation the third, 22 year old, stallion has not shown any noticeable outward sign of improvement; this may perhaps be explained by the hard night-work of this dairy-horse. He has, however, to a large extent regained the potentia coeundi, his working capacity, and the interest in his surroundings.

My own experiences won by experiments on dogs, bulls, and horses may be summed up as follows: by the proposed method of operation a great number of symptoms of senility were combated with success. In the cases of several dogs the positive effect has already lasted over four years and a half, in the case of bulls—two years and a half, and in the case of horses over 3 years, with undiminished and in some cases even with increased intensity.

As to the experiences of other investigators in applying our method the following observations may here be mentioned. In 1933, at the 5th congress of the Italian Anatomical Society at Cagliari, *Carlo Marchi* gave an account of the results of his latest „rejuvenative“ operations performed on 4 dogs in a high degree of senility. Before the operation these animals had been kept in especially favourable conditions, but no decrease of the symptoms of senility or improvement in the general state of health could be observed. Yet a very marked improvement appeared after the dogs had been submitted to an operation according to my method. In Marchi's opinion this method is undoubtedly efficient and useful.

In his letters of January 19th and February 28th, of the current year, Dr. *R. Feissli*, physician at Lausanne (Switzerland), informed me of the fact that his German wolf-hound which had shown symptoms of precocious senility and had been operated by me in August 1934, had gained a better appetite, had become much livelier, and that his coat which had grown thin on the back of late years had again attained a normal thickness.

As regards horses it may be mentioned here that according to a short account at a meeting of the Latvian Biological Society Dr. *V. Brencens*, Professor of Veterinary Surgery at Riga, has been able by applying my method to restore the potentia coeundi to a senile stallion.

The regenerative influence of the proposed method on the **aging organism of man** could also be observed by me (*Lebedinsky*, 1933, 1934, and the current year), the beneficent results showing in 14 cases out of 16.

Besides a great number of improvements of such complaints as can be ascertained subjectively (such as sexual impotence, decay of the physical powers, pain in the loins, headache, giddiness, ringing in the ears, insufficient sleep, failure of memory, moral depression as well as apathy and lack of decisiveness) our operation has exerted a favourable influence, in the direction of complete abolition, also on such symptoms of senility as are objectively ascertainable, as for instance presbyopia, deficiency of hearing, hypertrophy of the prostata, incontinentia urinae, watering eyes, and gray hair.

The first symptoms of improvement appear as an average 2—4 months after the operation.

The sequence of the symptoms of senility that are favourably influenced is individually different and varies from case to case. The first ameliorations are usually observed in the general state of mind, in the physical powers, in the weakness of the legs, and the nervous twitchings of the muscles; presbyopia and impotence are the last to disappear.

As yet 28 months have been recorded as the longest period during which the effect of our operation has lasted without any decrease.

Very similar to my observations were those of *J. A. Tavors*, (1934). In three cases (53,55, and 77 years) the disappearance of pains in the region of the heart, a decrease of the high blood-pressure, and an increase of haemoglobin in the blood could be noticed in addition to the above mentioned beneficent effects. At the moment of the publication of these results the ameliorations had already lasted for a time from 5 to 10 months without any decrease.

SUMMARY AND CONCLUSIONS.

1. By tearing up of a part of the testicular tissue (which by our method is a quite painless and bloodless operation) the diminished hormonal activity of the senescent testicles of domestic animals (dogs, horses, and bulls) and of man can be restored to a large extent.

2. In consequence a regeneration of the aging organism takes place, of its psychical and physical qualities.

3. The improvements thus obtained last in the case of animals for 5 years without any decrease, as regards man our observations cover as yet a period of two years and four months.

4. The offspring produced by the „rejuvenated“ animals are healthy in every respect and develop quite normally.

5. This method proves once more the dependence of the secondary male sexual characters on the internal secretion of the testicles (reappearance of the mane and the neck-hump of senile bulls after the operation).

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