nuclei of androgen-insensitive and wild-type male rats. As can be seen, there are no group differences in the level or in the pattern of estradiol binding. Both androgen-insensitive and wild-type males show selective binding of estradiol to hypothalamic nuclei as compared with cortical nuclei. Pretreatment with 2 µg of unlabeled estradiol 30 min before an injection of radiolabeled hormone substantially reduced the level of binding in the hypothalamic nuclei. Following pretreatment, dpm/mg tissue weight measures ± SEM were as follows: androgen-insensitive rats: HTH 1.47 ± 0.18, cortex 1.55 ± 0.13; wild-type males: HTH 0.41 ± 0.02, cortex 0.50 ± 0.05. Thus, estrogen binding in neural tissue of androgen-insensitive rats is similar to wild-type males, showing both tissue specificity and finite binding capacity. These data indicate that androgen-insensitive rats possess a functional estrogen binding system in the brain. Similar findings also were reported in androgen-insensitive mice[10,11]. Given these data, then estrogen as a metabolite of androgen, could be mediating some of the behavioral and physiological responses found in individuals with androgen-insensitivity[14,19-22].

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PRO EXPERIMENTIS

Improved treadmill to avoid foot and tail injuries of small animals

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Summary. A treadmill was improved so as to eliminate foot and tail injuries in small test-animals. The improvement was inexpensive and easily fabricated by the researchers.

Small animals often incur foot and tail injuries on treadmills having a series of metal rods that function as the electrically shocking mechanism[1]. These injuries are caused by inserting the foot and tail between 2 rods or between a rod and the moving belt. When this space is filled, animal hair and excreta accumulate at the corner between the belt and the shocking mechanism, and then wet excreta causes problems of short-circuiting. To avoid these problems, an improved treadmill was developed in our laboratory. It has been used to exercise 5 rats simultaneously or 10 mice in pairs.

Apparatus. As shown in figure 1, bakelite plates, 65 mm wide (slightly narrower than the width of each compartment), 75 mm long, and 2 mm thick are attached to a metal shaft. The surface of each plate is waxed, lest it should be wetted by the urine of the animal, and is provided with an electrically charged grid.

Together with a pair of mirrors, a light-source and receiver are so arranged that 2 IR-beams run through each compartment. When each animal is exercising in the front part of the compartment, the arm of a solenoid is used to rotate the distant end of the plate upward. Therefore, excreta on the belt pass under the plate into a tray. Whenever one of the animals moves to the back of the compartment, it is detected through the interception of the light beam. The electric circuit to the solenoid is cut off by this interception, thereby releasing the solenoid arm and lowering the distant end of the plate until it loosely touches the belt. The animal receives an electric shock from the charged grid on the plate without inserting the tail and foot between the belt and the plate. The optimal angle of the plate against the belt is about 30°.

Experiment. Eighteen 7-9-week-old, experimentally naive rats were used. Each animal was placed in the compartment provided with the improved shocking devices mentioned above (I-test). They were first trained on the moving belt at a speed of 15 m/min for 3 min, then exercised at 25 m/min for 30 min. After a few days, they were tested in the same way as for the I-test on a treadmill equipped with the original shocking mechanism (O-test).

Results and discussion. In the I-test, no injuries occurred in the rats except that the nails of 2 animals were slightly injured. On the other hand, 5 rats were severely injured in the O-test, and 3 animals slightly injured their tails, feet or nails. All of the severe injuries were in animals that had accidentally inserted a foot or tail between charged rods, or between a rod and the moving belt. Thus, the improved treadmill not only saved the animals from foot and tail

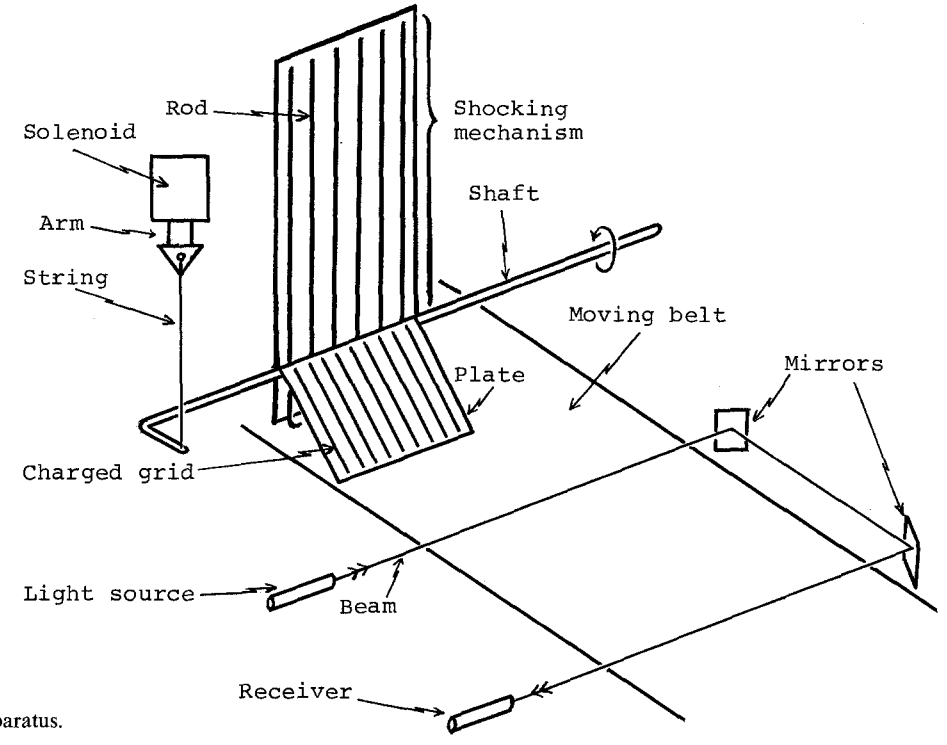

Figure 1. Diagram of improved apparatus.

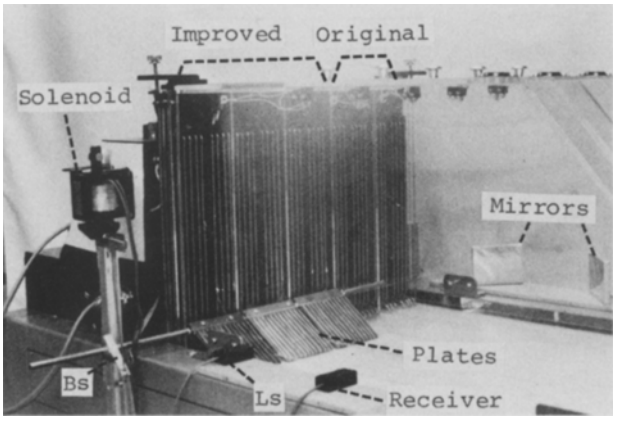

Figure 2. 2 original and 3 improved lanes are shown. The branch of a shaft (Bs) is connected with a string to the arm of a solenoid. Ls: Light source.

injuries, but also kept the surface of the belt clean. Please note the fact that short-circuits may occur frequently unless the surface of the plate is coated with wax.

The construction was easily achieved by the authors, and the total cost was less than 130 dollars.

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A simple method of preparing chick eggs for chorio-allantoic grafts

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Summary. A method of preparing chick hosts for receiving grafts to the chorio-allantoic membrane (CAM) is described, which is quicker and requires less manipulative skill than that in general use.

The CAM has been used many times as a site for transplanted tissues since Rous and Murphy first reported its ability to support the growth of tumors[1]. The method almost invariably employed nowadays is the 'artificial air space' technique[2-6], in which a small hole is first made through the shell to the air space (as the egg lies with its long axis horizontal), and a square of shell is then cut from the dorsal surface, using a small file or power tool fitted with a fine carborundum disc. The underlying shell membrane is moistened and torn, and the contents of the egg then drop, expelling the air from the air space, leaving a cavity beneath the window with the vascularized CAM as its floor. However, this technique presents certain difficulties. The delicate vascularized membranes lying underneath the shell may be damaged during the windowing procedure, either directly by the instrument penetrating through to them, or by friction-generated heat. This, of course, can usually be avoided by taking care, but the procedure then becomes progressively slower to perform, which may be a real disadvantage if numbers of hosts are to be prepared. Damage to membranes may lead to subsequent death of the host.