Table I

Amount of nitrogen and phosphorus in different samples of diluter

Sample No.	mg N/ml	mg P/ml
1	7·37	1·67
2	7·36	1·66
3	7·36	1·70
4	7·34	1·69

being 0·015 *M* as to sulphanilamide, and containing 335 IU of benzylpenicilline (sodium salt, Glaxo) per ml. After thorough mixing, the suspension is left at + 2·0°C for 48 h, after which time the supernatant is pipetted off.

Properties. The liquid obtained shows a yellowish colour and a feeble turbidity when inspected in a thin layer. Yolk particles of a size comparable with that of the sperm heads are very scarce. Smaller particles with a diameter below 1 μ are abundant, but do not consistently disturb the dark background at darkfield illumination. The pH varies between 6·90 and 7·00. Analyses of the content of N and P show small variations from sample to sample (Table I). This diluter may be stored at + 2°C for weeks without losing its properties.

Table II

Percentage of mobile bull spermatozoa kept at + 4°C in diluter

Samples No.	1		2		3	
H in diluter	4	24	4	24	4	24
Spermatozoa giving 'scating tracks'[2]	56	37	65	55		
Spermatozoa progressing without rotation . . .	23	32	23	25		
Spermatozoa swimming in circles	1	2	–	–		
Movement unclassified . .	1	2	1	1		
Total mobile	81	73	89	81	81	79

So far we are only able to judge the effect of this diluter on the survival of spermatozoa from observations on mobility.

Such observations on second ejaculates from three different bulls are presented in Table II. The semen was diluted 1:100 immediately after being collected, and the mobility registered after 4 and 24 h using a special photographic method which will be described elsewhere. In a similar experiment with human spermatozoa, the semen was diluted ten times only after 4 h, the semen being kept at room temperature before dilution. During the following 20 h at + 4°C the percentage of the mobile spermatozoa decreased from 81 to 70.

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Institute of Zoophysiology, University, Uppsala, May 4, 1959.

Zusammenfassung

Es wird eine vereinfachte Methode zur Herstellung eines isotonischen zitrathaltigen Extraktes von Eidotter beschrieben, der frei von Dotterteilchen grösser als 1 μ ist. Die Konstanz der Zusammensetzung bei wiederholter Herstellung dieses Extraktes sowie sein Einfluss auf die Motilität von Spermatozoen werden untersucht.

[2] L. ROTSCHILD, *Mammalian Germ Cells*, CIBA Found. Symp. (London 1953), p. 122.

PRO EXPERIMENTIS

A Simple Objective Method for Determination of the Glare Effect

(Preliminary report)

On the whole, there are two ways in which glare could affect the visual ability. One is caused by a lowered foveal sensitivity when a strong light falls into the eye (adaptive or retinal type). The other type appears when the eye is exposed to a light falling from the side. In this case, there is a diffuse diffraction and scattering of light in the optic media throwing an extra veil of light on the image of the object whereby the brightness of the object as well as of its surroundings is heightened (diffuse or veiling type). (For a survey of the physiology of glare, see e.g. GOLDMANN[1].)

The effect of glare on vision has generally been determined by subjective methods, based on the report of a test person. A more objective method of determining the visual ability is to make use of optokinetic nystagmus, registered electro-nystagmographically. In view of the fact that investigations of this type have not been carried out previously for the purpose of studying the glare effect, this preliminary report has been made with the object of drawing attention to a new and simple method which, in addition, happens to be as objective as could reasonably be expected.

Method. Optokinetic nystagmus was produced by projecting on to a screen, in the shape of a semi-circular cylinder, a number of vertical black and white stripes of equal width which were caused to move horizontally across the screen. The illumination was 20 lux. A detailed description of the apparatus will be found in a paper submitted by BLOMBERG[2]. The eye movements in the horizontal plane were registered electro-nystagmographically in the customary manner. Use was also made of vertical electrodes to note any possibly occurring blinks in the course of the experiment. The movement of the stripes was adjusted at optimum speed, i.e. the speed at which maximum frequency and highest amplitude of optokinetic nystagmus were achieved. The experiments took place in a darkened room.

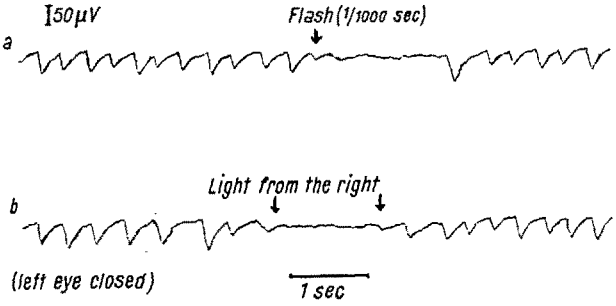
In order to produce glare of the adaptive type, a photographic flash (duration 1/1000 s) was triggered behind the individual undergoing the experiment. The flash was directed towards the ceiling. For the purpose of preventing the flash from causing consternation, with eye-shutting or blinking as a natural consequence, the test subject was told beforehand of the sequence of procedure. Attempts were also made to bring about diffuse glare by transmitting a beam of light from an ordinary torch held at a distance of about 20 cm from the eye in the orbital plane, from directly ahead, and from the side, at an angle of about 45 degrees to the visual axis. The other eye was held shut during this experiment.

Results.—It was found that the glare caused by the flashlight exposure had the effect of abolishing optokinetic

[1] E. GOLDMANN, Bull. Schweiz. elektrotechn. Ver. *41*, 751 (1950).

[2] L.-H. BLOMBERG, *The 'optokinetic fusion limit'. A study in 55 healthy persons.* (To be published.)

nystagmus for approximately $1^1/_2$ s. The same effect was produced on experiments with diffuse glare. Optokinetic nystagmus then ceased for as long as the eye was affected by the exposure (see Fig. *a* and *b*).



Effect of glare on optokinetic nystagmus

Comments.—The fact that optokinetic nystagmus abolished tends to show that the retinal sensitivity was reduced to such an extend that the moving stripes on the optokinetic screen could no longer be seen. The eye movement evoked by the optic stimulus therefore ceased. The method introduced in the above may be characterised as highly objective and rather appropriate for more exhaustive studies of the glare effect (for example under the influence of various pharmaceutics).

L.-H. Blomberg

Clinical Neurophysiological Laboratory, Sahlgrenska Sjukhuset, Gothenburg (Sweden), April 17, 1959.

Zusammenfassung

Mit Hilfe des optokinetischen Nystagmus und Elektronystagmographie kann man den Blendungseffekt auf das Sehvermögen bestimmen. Während der Blendung hören die optokinetischen Augenbewegungen auf. Der Effekt eines photographischen Blitzes (1/1000 s) und von schräg in das Auge fallendem Licht wurden studiert.

Informations - Informationen - Informazioni - Notes

STUDIORUM PROGRESSUS

Effect of Single and Chronic Thyroxine Injection on Fatty Acid and Cholesterol Synthesis in Mice[1]

By Paola Marchi[2] and J. Mayer[3]

The action of thyroid hormone treatment on fatty acid synthesis from acetate has been previously investigated by Spirtes, Medes, and Weinhouse[4] in liver slices of rats made hyperthyroid. These authors found that the rate of oxidation of acetate was 30–70% higher in liver slices of thyroid hormone-treated rats. They also reported that contrary to expectation acetate incorporation into fatty acids in these treated rats was as high as in normal animals or higher.

Investigation on the synthesis of cholesterol in hyperthyroidism has been somewhat more extensive. Several authors have concluded that cholesterol synthesis is stimulated in hyperthyroid states while it appears depressed in the opposite condition[5–7].

It has been customary to study the effect of thyroid hormones in synthetic processes by including thyroid preparations in the diet. However, single determinations after chronic treatment are difficult to interpret as secondary physiological reactions may interfere with the initial effect of thyroxine. It seemed useful to determine the course of fatty acid and cholesterol synthesis from acetate after subcutaneous administration of a single dose of Thyroxine. A study of the effect of prolonged treatment is also included.

Materials and Methods. The animals used were adult male albino mice. They were maintained in individual cages and fed *ad libitum* Purina chow and water. All animals were kept fasting for 24 h before being killed.

Each group consisted of experimental animals and controls. Experimental animals received a subcutaneous injection of 100 μg of l-Thyroxine. Controls received an equal volume of saline by the same route. At the appropriate time all animals were injected intraperitoneally with 0·4 mg of Na acetate-C^{14} (an approximate total of 10^6 counts/min to each animal). 30 min later they were killed by a blow on the head and decapitation. The liver was excised and weighed separately from the carcass.

One group of animals received 1·8 mg of l-Thyroxine at 24 h intervals over a period of 28 days. An equal number of controls were injected with saline in the same way.

Thyroxine solution was prepared by dispersing the powder (1-sodium thyroxine pentahydrate, Smith, Kline, and French) in small amounts of 0·9% saline and adding 1 *N* sodium hydroxide until complete solubility was achieved. The pH was then adjusted to 8 with 1 *N* HCl and 0·9% saline added to obtain the desired volume. All injections were administered subcutaneously in volume of 0·2 ml.

Extraction and Determination of Fatty Acids and Cholesterol. The method followed was essentially that described in a previous publication[8]. Results are expressed as percentage of counts retained $\times 10^3$.

[1] Supported in part by grants-in-aid from the John A. Hartford Memorial Fund; the National Institute of Arthritis and Metabolism (Gr. No. A-49) Public Health Service, Bethesda; the Albert and Mary Lasker Foundation, New York; the Nutrition Foundation, New York; and the Fund for Research and Teaching, Dept. of Nutrition, Harvard.

[2] Holder of a Research Fellowship in Department of Nutrition, Harvard School of Public Health, July 1957 to December 1958.

[3] Department of Nutrition, Harvard School of Public Health, Boston (Mass.).

[4] M. A. Spirtes, G. Medes, and S. Weinhouse, J. biol. Chem. *204*, 705 (1953).

[5] R. H. Rosenman, S. O. Beyers, and M. Friedman, J. clin. Endocrin. *12*, 1287 (1952).

[6] W. Marx, S. T. Gustin, and C. Levi, Proc. Soc. exp. Biol. Med., N.Y. *83*, 143 (1953).

[7] M. A. Spirtes, G. Medes, and S. Weinhouse, XIXth Intern. Physiol. Congr. Abstr. Montreal (1953), p. 789.

[8] C. E. Zomzely and J. Mayer, Amer. J. Physiol. *187*, 365 (1956).