the peroxidation of depot fat were suppressed. On a diet with 30% casein and 30% lard, which produced encephalomalacia as the main symptom, the incidence of encephalomalacia was uninfluenced by the presence of 7 ppm of SeO_2.

On a 30% casein, 10% cod liver oil diet which produced about an equal incidence of encephalomalacia and exudative diathesis, only the last mentioned symptom was prevented by 7 ppm of SeO_2.

The finding of the protective effect of selenium on exudative diathesis may throw light upon certain older observations from our our laboratory[9], according to which a certain cystine preparation gave protection against exudative diathesis (not against encephalomalacia) when fed at a level of 0·5%. This observation could not be confirmed with later supplies of cystine from other sources. As emphasized by SCHWARZ, cystine may sometimes be contaminated by the corresponding selenium compound.

The details of the experiments reported here will be published elsewhere.

H. DAM, G. KOFOED NIELSEN,
INGE PRANGE, and E. SØNDERGAARD

Department of Biochemistry and Nutrition, Polytechnic Institute, Copenhagen, July 12, 1957.

Zusammenfassung

Die exsudative Diathese, welche bei Küken durch Verfütterung einer Vitamin-E-freien Nahrung mit Torulahefe als Proteinquelle hervorgerufen wird, wird mit dem nicht unbeträchtlichen Gehalt dieser Hefe an leicht oxydierbaren Fettsäuren in Verbindung gesetzt.

Die Vitamin-E-freie Torula-Hefe-Nahrung führt zu Peroxydation des Körperfettes, wie es früher in entsprechenden Versuchen mit Kasein-Lebertran-Nahrungen gefunden wurde.

Die von amerikanischen Forschern gefundene Schutzwirkung von Selen gegen exsudative Diathese wird bestätigt.

Das Auftreten von Encephalomalacie wurde durch Selen nicht verhindert.

[9] H. DAM, I. KRUSE, INGE PRANGE, and E. SØNDERGAARD, Biochim. biophys. Acta *2*, 501 (1948).

Prophylactic Effect of Selenium Dioxide against Degeneration (White Striation) of Muscles in Chicks

It is known (DAM, PRANGE, and SØNDERGAARD[1]) that chicks reared on vitamin E-deficient, low-casein diets, with or without added fat, develop degeneration of muscles within 5 weeks. Macroscopically this form of degeneration appears as a white striation along the muscle fibers. The condition is prevented by vitamin E, and counteracted, to a large extent, by adding cystine (DAM, PRANGE, and SØNDERGAARD[1]) or methionine (MACHLIN and SHALKOP[2]) to the diet.

[1] H. DAM, INGE PRANGE, and E. SØNDERGAARD, Acta pathol. microbiol. scand. *31*, 172 (1952).

[2] L. J. MACHLIN and W. T. SHALKOP, J. Nutr. *60*, 87 (1956).

After having been notified by personal communications from Dr. E. L. R. STOKSTAD of The American Cyanamid Company, Research Division, and Dr. K. SCHWARZ, National Institutes of Health, Bethesda, Md., of the protective effect of selenium against exudative diathesis in chicks, a finding which we have confirmed (DAM, KOFOED NIELSEN, PRANGE, and SØNDERGAARD[3]), we have tested the effect of selenium dioxide against the type of muscular degeneration mentioned above.

Two groups of ten day-old chicks were used for the experiment. After twelve days on a commercial diet (DAM, HARTMANN, JACOBSEN, and SØNDERGAARD[4]), one group was shifted to the basal diet indicated in the Table, and the other to the same basal diet plus 7 parts per million of SeO_2 (5 p.p.m. of Se). One chick in the selenium group died accidentally after a few days.

The other chicks in both groups were sacrificed by decapitation after having received the experimental diets for five weeks, and autopsied.

Basal Diet	%
Crude casein	15
Gelatin	3
Salt mixture (DAM and SØNDERGAARD[4])	5·17
Vitamin mixture (DAM and SØNDERGAARD[4])	0·1
Choline chloride	0·2
Sucrose	76·53
	100·00

+ 0·001 g dicalciumsalt of 2-methyl-1,4-naphthohydroquinone diphosphoric acid ester (Synkavit 'Roche') per 100 g diet. Vitamins A and D_3 were given in aqueous solution (DAM, HARTMANN, JACOBSEN, and SØNDERGAARD[4]) 0·1 ml twice a week.

The average weights of the chicks in the two groups were 80 and 81 g at the beginning and 275 and 252 g (the selenium group) at the end of the experiment.

Seven out of the ten chicks in the unsupplemented group had white striation of breast muscles, whereas in the group receiving the SeO_2 supplement only one out of the nine surviving showed this symptom.

The result obtained by adding 7 p.p.m. of SeO_2 to the diet was approximately the same as previously found by adding 0·5% of cystine (DAM, PRANGE, and SØNDERGAARD[1]).

H. DAM and E. SØNDERGAARD

Department of Biochemistry and Nutrition, Polytechnic Institute, Copenhagen, August 3, 1957.

Zusammenfassung

Zwei Gruppen von je 10 Küken wurden während fünf Wochen mit einer künstlichen, Vitamin-E-freien Nahrung von niedrigem Kaseingehalt gefüttert. Die eine Gruppe erhielt eine Zulage von 7 mg Selendioxyd per kg Nahrung. Sieben Küken in der unsupplementierten Gruppe zeigten makroskopische Muskelveränderungen, während bei den Küken, welche die Selendioxydzulage erhielten, nur eines dieses Symptom aufwies.

[3] H. DAM, G. KOFOED NIELSEN, INGE PRANGE, and E. SØNDERGAARD, Exper. *13*, 493 (1957).

[4] H. DAM, S. HARTMANN, J. E. JACOBSEN, and E. SØNDERGAARD, Acta physiol. scand. (1957) (in press).

[5] H. DAM and E. SØNDERGAARD, Acta pharm. tox. Kbh. *9*, 131 (1953).