INFLUENCE OF BILE ACIDS ON EROSIONS
OF THE CHICK Gizzard LINING

Experimental results indicating the necessity of an
organic dietary factor for the maintenance of a normal
gizzard lining in the chick, and the prevention of
erosions or lesions of the lining have been given in a
number of papers.\textsuperscript{1, 2, 3, 4} A series of experiments on
the rôle of the bile acids in this deficiency disease may
now be reported.

The feeding of whole bile by oral administration or
by mixing with diet or as commercial dried bile tablets
has been found to prevent the development of the
roughened and eroded gizzard lining characteristically
found in chicks fed the basal diet without supplement.
In other experiments, vacuum concentrated whole beef
bile, cholic acid, deoxycholic acid, sodium glycodeholate
and sodium taurocholate were used as supplements to
the basal diet. All these showed a marked protective
action against the development of gizzard lesions. In
all these experiments vitamin K in the form of an
extract of alfalfa was added in a constant amount just
sufficient to maintain an approximately normal blood-
clotting time. In one case this vitamin K supplement
was added at a level about twenty times that required.
Typical results may be illustrated by the data given in
Table I.

| Supplement to | Number of | Average | Average | Average |
| basal diet | | weight | blood | gizzard |
| | | (grams) | clotting | erosion & | score & |
| | | | time | | |
| None | 10 | 290 | 4.9 | 0.90 |
| Cholic acid, pure, 0.5 per cent. of diet | 10 | 281 | 4.6 | 0.05 |
| Vitamin K supplement 20 times adequate level | 10 | 283 | 2.7 | 0.06 |

It is apparent that certain components of bile, when
added to the diet, protect against erosion and lesions
of the gizzard lining. It seems probable that bile may
play a definite rôle in the maintenance of a normal
gizzard lining.

The separation of gizzard erosions from the vitamin K
deficiency syndrome is given further support in the
facts that bile is a very poor source of vitamin K\textsuperscript{6} and
that large doses of vitamin K can be fed without
diminishing the incidence of gizzard erosions.

The identity of the chick gizzard factor with any
of the components of bile and the mechanism of the
action of these components on the gizzard lining will
require further research.

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4 H. R. Bird, O. L. Kline, C. A. Elvehjem and E. B.
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