ELECTROLYTE REPLACER AND EGG SHELL QUALITY

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Drinking water containing an electrolyte replacer (ER) is often given to laying hens during periods of stress. A typical ER, and one recommended by the NSW Department of Agriculture, is that derived by Cumming and Heath (1969) for use during outbreaks of Infectious Bronchitis. This treatment consists of administering 2.2 g NaCl and 4 g potassium citrate/l of drinking water for up to 7 d. We have found that drinking water containing between 0.2 and 2 g NaCl/l causes large increases in egg shell defects which are detected within a few days of administering saline water to older hens (Balnaveet al., 1988). The present study was madetodeterminethe effect of the above ER on the incidence of eggshell defects from hens of two ages from the same flock.

In this split-plot design 20 hens consistently producing eggs with goodshell quality were selected at 48 and 72 weeks of age from the same University layer flock. They were fed a proprietary layer mash (11.0 MJ of ME and 160 g crude protein/kg) throughout lay and given free access to food and water at all times. Ten hens in each age group were maintained on town water while the remaining 10 hens received this water containing the ER at the recommended dosage for 7 d. Results are shown in the Table.

TABLE 1 Responses to electrolyte replacer (ER) in drinking water

Electrolyte replacer	Shell defects (%)		Egg production (%)		Water intake (ml/d)	
Age (weeks)	48	72	48	72	48	72
-	2.5	3.5	71.2	68.0	222	256***
+	16.9	49.2**[1]	71.3	63.9	225	264***
Significance of ER effect	*	***				
SEM (ER effect)	6.81		5.30		3.9	
SEM (Age effect)	7.65		5.48		3.7	

[1] Significance of age effect * P<0.05, ** P<0.01, *** P<0.001

Food intake (range 154-158 g/d) was not significantly affected by treatment or age. The use of the ER significantly increased the incidence of shell defects at both ages without affecting the other aspects of production. The response was evident within the 7 d of ER administration and the effect was significantly greater in the older hens. During the four weeks after removal of the ER egg shell defects increased to 44 and 78% respectively in the two age groups whereas increases to 5 and 7% respectively were observed in hens which received the town water only.

BALNAVE, D., YOSELEWITZ, I. and DIXON, R.J. (1988). Proc. Poult. Res. Found. Symp., University of Sydney. p. 29.

CUMMING, R.B. and HEATH, (1969). Proc. Aust. Poult. Sci. Conv. p. 459.

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