

## SELENIUM IN WHOLE BLOOD OF ADELAIDE RESIDENTS

G.J. JUDSON\*, K.H. MATTSCHOSS\* and D.W. THOMAS\*

In some areas of South Australia, Se-responsive disorders occur in livestock. A study of the Se status of man in these areas of low Se is in progress.

Reference ranges for blood Se concentrations have been established using 219 staff of this Institute. Selenium was measured (Watkinson 1966) in blood samples from subjects fasted overnight and were collected during a week in December, 1977. Results are shown in Table 1.

TABLE 1. Selenium concentration in whole blood,  $\mu\text{mol/l}$ .

Group	No. of Subjects	Mean	Range	Reference Range*
Clinically Healthy				
Males	70	1.94	1.47-3.11	1.46-2.60
Females	46	1.91	1.46-3.52	1.34-2.71
Total	116	1.93	1.46-3.52	1.41-2.64
Others				
Oral contraceptives	32	1.97	1.53-2.95	1.43-2.70
Other medications	47	1.95	1.51-2.85	1.50-2.53
Acute Illnesses	24	1.81	1.39-2.24	1.42-2.31

\* Calculated using mean  $\pm$  2 S.D. of log-Se values.

The Se values in the healthy individuals approximated a log-normal distribution. For each sex, the variation in log-Se values in the healthy individuals was not related to either age [70 men, age-33,19-64 (mean and range in years),  $r = -0.01$   $P > 0.05$ ; 46 women, age-31,17-55,  $r = 0.13$   $P > 0.05$ ] or to the blood packed cell volume (PCV) [67 men, % PCV - 44,37-50,  $r = 0.01$ ,  $P > 0.05$ ; 43 women, % PCV - 40,30-45,  $r = 0.25$ ,  $P > 0.05$ ]; blood cells contained 59% (55 to 64% in 4 men and 4 women) of the whole blood Se content.

The mean Se concentrations for clinically healthy men and women were similar ( $P > 0.05$ , 't' test) and the combined mean of 1.93  $\mu\text{mol/l}$  (Table 1) is about twice the value reported for New Zealand residents but is less than the mean value of about 2.6  $\mu\text{mol/l}$  reported for large groups of residents in Canada, U.S.A., or Germany (Burk 1976). The taking of various medications, including low (0.03 mg daily) or moderate (0.05 mg daily) doses of ethinyloestradiol, or the presence of minor acute illnesses (Table 1) did not appear to affect the blood Se concentration ( $P > 0.05$ , 't' test) in Adelaide residents.

BURK, R.F. (1976). In Proc. Symp. "Selenium-Tellurium in the Environment", p. 194, Notre Dame (I.H.F., Inc.: Pittsburgh)  
 WATKINSON, J.H. (1966). Anal. Chem. 38:92

\* Institute of Medical and Veterinary Science, Frome Road, Adelaide, S.A., 5000.