

CHANGES IN TOTAL BODY POTASSIUM IN AUSTRALIAN ABORIGINAL CHILDREN DURING
THE FIRST YEAR OF A DIETARY SUPPLEMENTATION PROGRAM.

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Total body potassium (TBK) measurements were completed before, after six months and at the end of the first year of a continuing trial comparing the effects of lactose containing and lactose hydrolysed milk supplements on a group of Australian Aboriginal children from Woorabinda community in Queensland.

Milk (200ml) was given in the morning and the evening of each week day, consumption was observed and recorded. There was no recording of other food intake. The trial has a double blind crossover design, the children involved crossed over milks at six months, so in the first year they spent six months on each milk preparation. Subjects were stratified for sex and lactose absorption status. Breath hydrogen tests carried out every six months showed only two changed lactose absorption status over the year. Because of these facts the lactose content of the milks has been ignored in this discussion. The children, aged 3 to 5 years were flown to Brisbane by the RAAF, counted in the body counter for 16 minutes and returned home the same day. Twenty-two children had three measurements made. Because of the restricted counting period the uncertainty of the TBK was 2.5g for each measurement and for this reason the results of the subjects were pooled for both periods.

Subjects (n=22)	May 1987	Nov 1987	May 1988
Total TBK g	453	668	649
TBK gm/kg	1.35	1.88	1.70
TBK predicted g	700	740	827
TBK pred. g/kg	2.07	2.07	2.16
Mean weight kg	15.33	16.20	17.39
Mean height mm	1010	1044	1076
Mean skinfold mm	8.86	9.69	9.29

Baseline TBK was below standards based on Australian and American data for males and females. After 6 months supplements TBK levels had increased markedly towards the norm. However in the rest of the year no further change was seen even though weight gain continued through both periods. Changes in height were similar over both periods, while single triceps skin folds were slightly thicker at the time of the second measurement.

The change in TBK and weight in the first period probably reflected a catch up change in body cell mass. The relatively constant TBK in the second six months, while weight continued to increase, must have resulted from a gain in tissues low in K⁺ such as fat and extracellular solids or fluid. The children may have reached a new equilibrium where a nutrient such as protein was still limiting. However, the initial change towards standard values with this supplement containing 12g of high quality protein and 240 kcal per day suggests the children were not optimally nourished when the trial began.

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