

ABSTRACTS

\*

**EFFECT ON POSTPRANDIAL GLYCEMIA OF A FORMULA DIET AND ITS CARBOHYDRATE FRACTION WITH OR WITHOUT PROTEIN AND FAT.**

G. A. Spiller, Research Consultant, Los Altos, CA 94022, H. Ashley\*, C. Chuck\*, T. Patterson\*, J. Whittan\* and J. Scala\*. Shaklee Research Center, Hayward, CA 94545.

We had previously determined that a nutritionally complete formula diet (FD) induced a significantly lower hyperglycemia than either its sugar mixture (FDS = fructose, corn syrup oligosaccharides and lactose from milk) or glucose (GLU) when fed to 8 healthy adult subjects. When 56 g carbohydrate equivalents were fed to fasting subjects, mean  $\pm$  SEM mg/dl changes from fasting serum glucose were:

	15 min	30 min	60 min	120 min
GLU	+37 $\pm$ 5	+40 $\pm$ 8	+16 $\pm$ 11	-14 $\pm$ 6
FDS	+50 $\pm$ 5	+46 $\pm$ 11	+6 $\pm$ 7	-12 $\pm$ 6
FD	+14 $\pm$ 3	+3 $\pm$ 6	-15 $\pm$ 5	-7 $\pm$ 5

To determine which component caused the lower hyperglycemia on FD, we added 33 g protein (soy and milk) or 8 g vegetable fat to the FDS, as present in the FD. The mean  $\pm$  SEM mg/dl change from fasting serum glucose was:

	15 min	30 min	60 min	120 min
FDS+PROTEIN	+17 $\pm$ 4	+12 $\pm$ 6	-18 $\pm$ 6	-16 $\pm$ 4
FDS+FAT	+42 $\pm$ 12	+42 $\pm$ 6	+10 $\pm$ 8	-14 $\pm$ 7

The addition of fat did not alter the sugar glycaemic response, but the addition of protein made the glycaemic response similar to the FD, confirming a major role of proteins in affecting glycaemic response to food and the importance of evaluating intact foods for metabolic effects.

**VITAMIN A TRANSPORT IN HYPERLIPOPROTEINEMIA.** DK Smith\* and DS Feldman\* (intr by EB Feldman) Medical College of Georgia, Augusta, GA.

In patients with hyperlipoproteinemia (HLP) circulating vitamin A (vitA) concentrations frequently are increased. We measured fasting plasma vitA colorimetrically and retinol binding protein (RBP) by radioimmunoassay calculating the molar ratio vitA:RBP (MR) as possible indicator of vitA intoxication. Subject groups were healthy controls (I), type II HLP before (IIa) and after (IIb) cholesterol-lowering drug therapy, and untreated types III, IV, V HLP (III). Results were (mean  $\pm$  SEM):

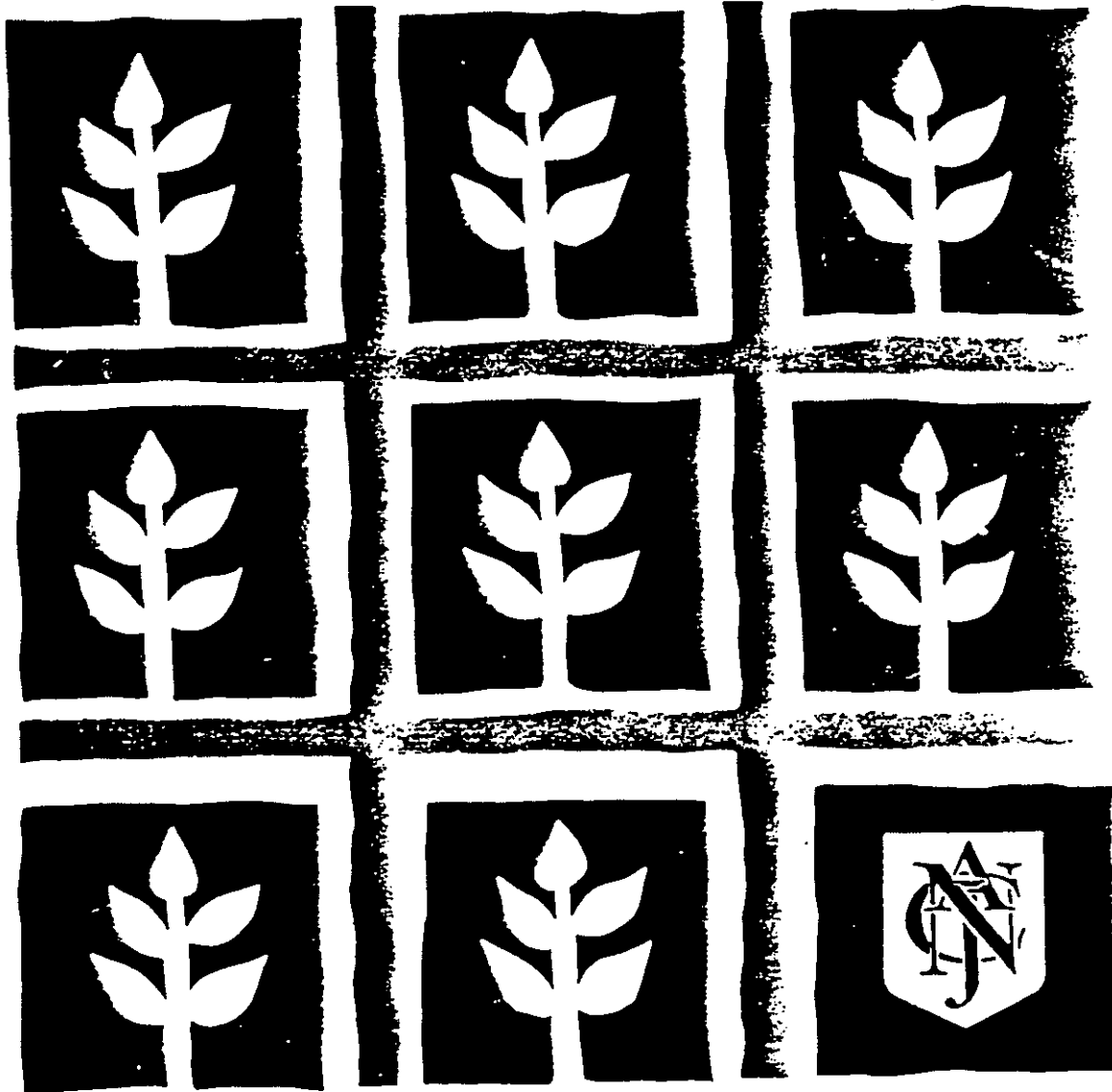
group (n)	vitA (ug/dl)	RBP (mg/dl)	MR (vitA:RBP)
I (13)	55.6 $\pm$ 5.3	5.9 $\pm$ 0.4	0.70 $\pm$ 0.05
IIa (22)	93.4 $\pm$ 6.3(a)	6.8 $\pm$ 0.5	1.06 $\pm$ 0.07(b)
IIb (8)	82.7 $\pm$ 7.4(b)	8.9 $\pm$ 0.8(c)	0.71 $\pm$ 0.07
III (12)	67.1 $\pm$ 9.6	6.0 $\pm$ 0.8	0.88 $\pm$ 0.10

(probability of difference vs. group I: a <0.001, b <0.01 c, <0.02)

Despite increased vitA and MR in group IIa there were no clinical signs of vitA toxicity. With treatment of type II HLP the decrease of vitA was of borderline significance (0.05 > p > 0.01) and RBP increased and MR decreased significantly (p<0.05, <0.01 respectively). There was a significant correlation between plasma cholesterol (C) (mean 270 $\pm$ 21 mg/dl) and MR in all HLP patients (r = 0.56, p <0.001), and an inverse correlation in healthy subjects (r = -0.73 0.05 > p > 0.01, mean C 174 $\pm$ 21 mg/dl). The increased value of MR, greater than unity, in group IIa implies the presence of unbound retinol and/or retinyl ester. Treatment of type II HLP not only restored C (248 $\pm$ 20 mg/dl) and MR values towards normal but resulted in RBP production. The disturbance of the usual vitA-RBP transport mechanism in HLP may result from a defective signal for RBP production in the presence of hypercholesterolemia.

# The American Journal of **CLINICAL NUTRITION**

*Official Journal of The American Society for Clinical Nutrition, Inc.*



VOLUME 39 NUMBER 4 APRIL 1984

(44)  
REF