

FORMS OF VITAMIN B₆ IN EGG YOLK

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Yolk contains 90% of the vitamin B₆ in the hen's egg; hence it is the major source of this vitamin for the developing chicken. During the course of studies to investigate the effects of supplementary vitamin on B₆ concentrations in the yolk, several metabolites of vitamin B₆ were detected and measured. Extracts of ovarian follicles and blood from three laying hens (White Leghorn X Australorp) were prepared and chromatographed on phosphocellulose columns as described by Heard (1982). Unphosphorylated and phosphorylated metabolites were determined fluorometrically as 4-pyridoxic acid lactone and 4-pyridoxic acid-5'-phosphate respectively (Contractor and Shane 1968). The metabolites detected, and their concentrations in yolk follicles, are listed in the Table.

Vitamin B₆ metabolites in ovarian follicles (ng/g)[§]

Metabolite	Bird number		
	13	14	15
Pyridoxal (PL)	103 ± 3	80 ± 14	105 ± 4
Pyridoxine (PN)	51 ± 9	105 ± 22	60 ± 6
Pyridoxamine (PM)	139 ± 14	132 ± 34	165 ± 17
Pyridoxal phosphate (PLP)	2251 ± 100	2536 ± 138	3293 ± 513
Pyridoxamine phosphate (PMP)	221 ± 42	198 ± 15	364 ± 160
Pyridoxic acid (PA)	281 ± 69	212 ± 68	184 ± 82

[§] Mean ± SEM for 3-4 follicles

Rabinowitz and Snell (1948) reported that the vitamin B₆ was present in egg as PL and PM, with traces of PN. Acid hydrolysis employed in the determination of B₆ by microbiological methods results in the conversion of PLP and PMP to their unphosphorylated forms. The present studies showed that about 80% of the B₆ in yolk was PLP. It was also the predominant circulating form of the vitamin in laying hens.

CONTRACTOR, S.F. and SHANE, B. (1968). *Clinica chim. Acta* **21**: 71.
 HEARD, G.S. (1982). Ph.D. Thesis, University of Sydney.
 RABINOWITZ, J.C. and SNELL, E.E. (1948). *J.biol.Chem.* **176**: 1157.

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