The Vitamin B₁₂-Content of Human Fetal Tissues

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Deficiency of B₁₂ during fetal life has been suggested to cause malformation or death of the fetus ¹. Moreover the fetal erythroblasts have been considered to be related to the megalo- blasts occurring in anemias caused by B₁₂ deficiency. It was therefore of interest to study the B₁₂-content of fetal tissues.

Method. 25—500 mg of tissue was homogenised; crude papain and sodium cyanide were added. The volume was made up to 25 ml with phosphate-citric acid buffer, pH 5.0. One hour's digestion at + 60°C was followed by heating at 100°C for 15 min. After filtration or centrifugation the B₁₂ content of the extract was assayed microbiologically using *Euglena gracilis* z². The recovery of added B₁₂-⁶⁰Co was nearly complete as determined

Table 1. Mean and range of the vit. B₁₂ content of human fetal tissues in mμg/g fresh weight.

Tissue	Fetal length	
	6 — 15 cm No. of obser- vations	16 — 25 cm No. of obser- vations
Liver	17 360 (250—490)	6 340 (230—530)
Spleen	6 59 (48—79)	11 50 (37—72)
Kidney	14 140 (115—170)	7 130 (75—230)
Adrenals	15 180 (120—270)	7 180 (130—260)
Lung	2 77 (55—99)	2 87 (82—92)
Heart	17 45 (39—62)	8 41 (32—54)
Thymus		4 23 (14—30)
Brain	14 25 (13—38)	8 9.7 (5.3—15)
Spinal cord	14 63 (36—106)	11 36 (14—51)
Muscle	13 39 (23—44)	6 29 (21—35)

by both radioactivity and microbiological measurements. Extracts of liver and muscle from a hog previously injected with B₁₂-⁶⁰Co contained close to 100 % of the radioactivity of the organ.

Material. Liver, spleen, kidney, adrenals, heart, lung, thymus, brain, spinal cord and muscle from 28 fetuses of 6—25 cm length were analysed. *Results.* See Table 1.

Conclusions. No changes in B₁₂ concentration of fetal organs were observed over the period of life investigated except for brain and spinal cord in which the vitamin was found to decrease with age. The data on fetuses will be compared with those on prematures, children and adults.

1. Thiersch, J. B. *Am. J. Obstet. Gynecol.* **63** (1952) 1298.
2. Ross, G. I. M. und Mollin, D. L. in Heinrich, H. C. *Vitamin B₁₂ und Intrinsic Factor*, Ferdinand Enke Verlag, Stuttgart 1957, p. 437.

A Twin Microscope for the Perkin-Elmer Model 21 Infra-red Double-Beam Spectrophotometer

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In our laboratory a Perkin-Elmer 21 infra-red double-beam spectrophotometer is employed. As the need arose for a microscope attachment to it, we began constructing such a device in the autumn of 1956.

The instrument now completed consists of 2 parallel microscopes lying horizontally directly in the beams. Each microscope has 10 mm reflecting Schwarzschild aplanats for objective and condenser. A lamp was built into the monochromator of the spectrometer to project its entrance slit upon the sample. The latter is observed through a retractable viewer with a semi-reflecting right-angle prism.

The stage is vertical, it has right-angle slides and moves axially for focusing. It can also be swung upwards-outwards for attention.

The whole microscope attachment forms a unit. It is easily removed and replaced with accuracy, being secured in position by two pins.