

Incidence during pseudopregnancy. Data are incomplete and based upon instances wherein copulation did not result in impregnation. A number of pseudopregnancies induced in this manner have been obtained, and a study of cases representing various stages of the pseudopregnant period indicated that pregnancy cells persisted throughout (about 12 days), identical in nature with those occurring during normal pregnancy. They diminished in size, became more granular, and disappeared just before the cycle normally should have re-established itself. However, more cases are necessary to justify definite conclusions on this point.

The fact that pregnancy cell types occur at all during pseudopregnancy would indicate that their presence is independent of embryonic influence. Influence of litter size, moreover, appears to be negligible, since the protocols reveal 2 instances (15 and 17 days *post coitus*) in which only 2 embryos were found *in utero*; nevertheless the pituitaries were characterized by the presence of pregnancy cell types apparently as well defined as in instances of larger litters.

The ovaries of all stages in which pregnancy cells were found were characteristically luteal, and, in view of previous work from this laboratory,¹ it appears probable that the appearance and duration of these cell types are under the influence of the functional corpora lutea of the reproductive cycle.

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Calcium, Phosphorus and Cholesterol in Cataractous vs. Apparently Normal Lenses from Human Eyes.*

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Lenses used in this study were, for the most part, obtained at cataract operations. A few, however, were obtained at autopsy and in one instance a dislocated lens which was apparently perfectly normal was obtained at operation. Calcium was determined by the method of Fiske and Logan,¹ phosphorus by a modification of the

¹ Haterius, H. O., and Charipper, H. A., *Anat. Rec.*, 1931, **51**, 85.

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¹ Fiske, C. H., and Logan, M. A., *J. Biol. Chem.*, 1931, **93**, 211.

method of Fiske and Subbarow,² and cholesterol by a modification of the method of Bloor, Pelkan and Allen.³ The weight of 46 lenses studied ranged from 0.1046 to 0.3606 gm. with an average of 0.2237 gm.

Cholesterol determinations on the hot alcohol extract of 42 lenses ranged from 282 to 717 mg. %. Only one fell below 300 mg. % (supposedly normal) and only one above 700 mg. % (a case of immature cataract. All the values are at a much higher level than in normal blood but, with few exceptions, appear to bear no definite relation to age, sex, clinical findings of eye and other conditions, or to the values for calcium and phosphorus. In no case, however, where the lens was supposedly normal (5 cases) did the cholesterol reach a value of 500 mg. %.

Calcium and phosphorus were determined on the residue remaining after 24 hours' continuous extraction of the macerated lens in hot refluxing alcohol.

Values for calcium in 44 lenses ranged from zero in one case of immature cataract to 14,072 mg. % in a case of a dislocated and calcified lens obtained at operation. In 8 lenses supposedly normal, 7 of which were obtained at autopsy and one at operation because it had been dislocated, the calcium ranged from 8.9 to 17.6 mg. %. The level of calcium in the lens would thus appear from this meagre data to be somewhat higher and to have a wider range than in normal blood. Only one lens yielded no calcium and this lens had also the highest cholesterol found so far in any lens (717 mg. %). We were fortunate in obtaining the lens of the other eye (the right eye) in this same patient and the lens showed a low calcium (16.2 mg. %) and a low cholesterol (383 mg. %). Both lenses were diagnosed as immature cataract. Lenses in 2 other cases of immature cataract yielded low figures for calcium (3.6 and 7.5 mg. %) and high figures for cholesterol (572 and 527 mg. % respectively), while one immature cataract had a low calcium (11.3 mg. %) and an average cholesterol (450 mg. %).

One case of mature cataract gave a low figure (7.6 mg. %) for calcium and a high figure (622 mg. %) for cholesterol. Still another, with no diagnosis so far, gave a low figure for calcium (8.4 mg. %) and a high figure for cholesterol (520 mg. %). One case of nuclear cataract had only 3.3 mg. % of calcium and a rather high figure for cholesterol (463 mg. %).

² Fiske, C. H., and Subbarow, Y., *J. Biol. Chem.*, 1925, **66**, 375.

³ Bloor, W. R., Pelkan, K. F., and Allen, D. M., *J. Biol. Chem.*, 1922, **52**, 91.

In the 28 other cases of cataract studied the calcium ranged from 17.1 (the only one below 20) to 14,072 mg. % in the case of the dislocated and calcified lens already mentioned. There were 3 other very high figures: 61.9 mg. %, diagnosed as immature cataract; 73.4 mg. %, mature cataract and secondary glaucoma; 200.8 mg. %, glaucoma.

In this case of glaucoma we were also fortunate in obtaining the lens of the other eye of the same individual (both were obtained at autopsy). Here the calcium was low, only 11.8 mg. %. The cholesterol in this apparently normal lens was low (374 mg. %) and still lower in the glaucomatous lens (353 mg. %).

Calcium for all the rest of the 28 cataractous lenses was below 56 and above 20 mg. %.

Phosphorus was determined in 39 of the 44 lenses in which calcium was determined. The values for phosphorus in the alcohol extracted material ranged from 3.9 mg. % (a case of diabetes mellitus) to 5,162 mg. % in the case of the dislocated and calcified lens already mentioned, but, as a rule, the values fell between 10 and 30 mg. %.

When the values for phosphorus are considered in conjunction with the values for calcium some interesting possibilities are suggested. Thus in the case of mature cataract and secondary glaucoma mentioned above in which the calcium was 73.4 mg. %, the phosphorus was 38.1 mg. %, practically the exact amount that should be found were all the calcium combined as $\text{Ca}_3(\text{PO}_4)_2$, the 0.17 mg. % excess phosphorus being well within experimental error. This may, of course, be only a coincidence. It is the only case in which we have found this to be true so far. This and other considerations have led us to undertake a partition of the acid soluble phosphorus and calcium and acid insoluble phosphorus and calcium (if calcium exists in such form) by means of trichloroacetic acid. This and other studies are now in progress along the lines indicated.

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