100,000 in distilled water. The whealing normally produced by either of these dilutions in 10 different subjects was essentially inhibited in every case when applied to sites previously prepared with 10 and 5% pyribenzamine hydrochloride, the inhibition being most complete with the dilute histamine. Low papules were noted about the sweat glands. Around the pyribenzamine site the flare was inhibited but there was extreme erythema at the site. Lesser inhibition of the wheal was noted consistently with lower concentrations of pyribenzamine, *i.e.,* 0.1 and 1%. Also the degree of inhibition appeared to depend upon the reactivity of the individual skin to both the histamine and to the density of electrical current. Similar experiments were performed introducing the histamine 24 hours after the iontophoretic introduction of pyribenzamine solutions into the skin. It was repeatedly found that almost the same degree of inhibition existed after the longer interval of time.

The effects of sodium chloride, ephedrine hydrochloride, ephedrine sulfate and procaine hydrochloride in concentrations of 10, 5, 1 and 0.1% were also studied in the same manner. When any of these substances were introduced into the skin by iontophoresis the subjects noted a slight burning sensation, and on removal of the electrode, there was an initial erythema and papule formation about the pores. This reaction disappeared in all cases in approximately one and a half hours and no further effects were noted. No inhibition of the histamine wheal or flare was observed by any of these substances when using dilutions of histamine phosphate of 1 to 10,000 and 1 to 100,000.

Summary. Using the iontophoretic technic, it was observed that pyribenzamine hydrochloride inhibited histamine wheal formation in the human skin whereas sodium chloride, ephedrine hydrochloride, ephedrine sulphate and procaine hydrochloride failed to produce this effect in the concentrations used.

The Pyribenzamine Hydrochloride was kindly supplied by the Ciba Pharmaceutical Products Corporation.

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A New Bone Deformity in the Chick.*

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A bone deformity has been observed in White Leghorn cockerels which were raised on purified diets. The first observation was made on chicks receiving diet 653 of Hill, Norris, and Heuser,[1] to which had been added 55 μg of synthetic folic acid† per 100 g of diet. The incidence of the malformation was relatively low, occurring in approximately 15 to 20% of the chicks. The weights of the affected chicks at 6 weeks of age were 150 to 250 g below the average weight (460 g) of the unaffected chicks. The most severe cases had difficulty in walking, and their legs splayed out from the tibio-femural joint. No slipping of the tendon from the condyle

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† We are indebted to Lederle Laboratories, Pearl River, N.Y., for synthetic folic acid.

TABLE I.
Average Body Weight of 6-weeks-old Chicks Together with Measurement of Bone Deformity.

Diet	Wt 6 wks g	Visual incidence of deformity %	Avg angle of tibiae °	Significance of difference
Normal diet: corn, wheat, soybean, fish meal	537 (15)*	0	45.8 (12)	—
Basal diet	197 (14)	50	57.7 (14)	1666:1
″ ″ + 10% fish meal	267 (15)	40	54.0 (15)	9999:1
″ ″ + 4% gelatin†	326 (15)	33	51.9 (13)	555:1
″ ″ + 4% gelatin + 10% fish meal	465 (15)	6.7	48.5 (15)	27:1

* Numbers in parentheses indicate the number of chicks represented in the averages.
† When gelatin was added the level of casein was reduced from 26% to 23%.

of the tibio-metatarsal joint as occurs in perosis was observed. The feathers of the abnormal chicks were very rough due to the use of the wings for propulsion. The hemoglobin levels of both groups were normal.

The length, weight, density and breaking strength of the metatarsi, and bone ash and degree of twisting of the tibiae were ascertained for both deformed and normal chicks. The degree of twisting was determined by placing the 2 articular elevations of the distal end of the tibia on a flat surface and measuring the angle made with the horizontal surface by a line drawn from the point of contact through the widest part of the expanded proximal end. The normal and deformed bones are shown in Fig. 1, which also illustrates the angle just described. A statistical analysis of the data showed that the density of the deformed metatarsi was significantly lower than that of the normal bones, and that the difference in degree of twisting of the normal and deformed tibiae was highly significant. There was no difference in bone ash, nor were there any differences in the other measurements that could not be attributed to differences in body size and weight.

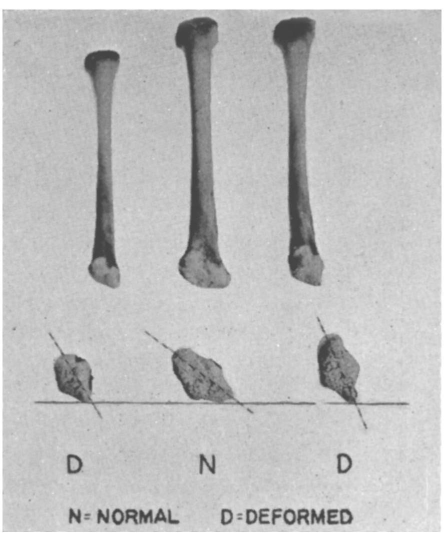

FIG. 1.
Twisting of tibiae in deformed chicks.

In further work gelatin was omitted from diet 653 and 26% alcohol extracted casein was substituted for 27.5% acid-washed casein. Glycine, *l*-cystine and folic acid were added at the levels of 0.7 g, 0.2 g and 100 μg per 100 g of diet, respectively. Crude gelatin and fish meal were added as supplements to this basal diet. Chicks which received a diet consisting of 30% wheat, 30% corn, 30% soybean meal, 5% fish meal, minerals and vitamins showed none of the visual symptoms associated with this deformity and were considered normal. The angle of twisting was determined on the right tibia of all chicks.

The results of this study are presented in Table I, together with a statistical analysis of the data. The incidence of the bone deformity and the degree of twisting at 6 weeks of age were much greater among chicks fed this basal diet than among those fed diet 653. The addition of 4% gelatin or 10% fish meal to this basal diet caused some decrease in the incidence and severity of the deformity. However, the addition of fish meal and gelatin simultaneously was more effective in the prevention of this malformation than the addition of each alone.

The basal diet used in this study was deficient in one or more factors as indicated by the low growth response as well as the occurrence of the bone deformity described. Some of the beneficial effect of the added fish meal and gelatin may have been due to the glycine and/or arginine content, but not all, since the addition of 7.5% gelatin in the previous study did not completely prevent the occurrence of this bone deformity, nor did it allow maximum growth response. This diet contained adequate amounts of the required minerals and known vitamins. The diet also contained 100,000 units of strepogenin per 100 g, which is in excess of that found necessary for growth by Scott, Norris, and Heuser.[2]

Summary. A new bone deformity which is characterized by a twisting of the tibia at the proximal end has been observed in chicks fed purified diets. Under the conditions of this experiment gelatin and fish meal decreased the incidence and severity of the malformation. The diet used appears to be deficient in an unknown factor or factors necessary for maximum growth and the prevention of the bone deformity.

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The Effect of Ingested Mineral Oil on Plasma Carotene and Vitamin A.

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Due to the shortage of biological fats and oils during the war, the use of mineral oil in foods, in the form of imitation mayonnaise or salad dressing replacing the usual food oils, increased considerably. Such food substitutes are also used extensively in weight-reduction diets.

There are numerous reports concerning the potentially harmful effects of mineral oil based upon its interference with the absorption of fat-soluble vitamins,[1-8] particularly vitamin A and its precursor, carotene.[1-6] Most of the work is based on animal experiments in which huge amounts of mineral oil were used compared with what would ordinarily be taken by man. Nevertheless, the Council on Foods and Nutrition of the American Medical Association concluded[9] that "the indiscriminate use of mineral oil in foods and cooking is not in the interest of good nutrition, and any such use should be under careful supervision of a physician."

Curtis and his collaborators[10,11] showed in man that the ingestion of mineral oil will prevent blood carotene rises consequent to simultaneous intake of carotene-rich foods. They[11] also reported a decrease in blood carotene in subjects on a normal diet who took 20 cc of mineral oil immediately before

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