

In many cases it is possible to demonstrate definitely by palpation the inclusion of all chest muscles on the paralyzed side in the new phenomena noted alone for the superior intercostals. I am certain more careful means for detecting this slight difference will show that all the so-called muscles of ordinary respiration enter the hemiplegic syndrome. Jackson mentions one case illustrating this fact which was observed by him.

The necessity for accurate confirmation of the exact location of Spencer's two respiratory centres by means of degeneration experiments and the course which tracts take from such centres to the respiratory nucleus in the medulla is obvious.

A NOTE ON THE FOOT OF THE AMERICAN NEGRO.¹

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It would appear that the widespread notion of the flatness of the negro's foot had its origin in this country. The bones of the negro's normal foot differ in no regard from the white man's as far as their individual shapes are concerned, excepting that of the os calcis, the length of whose posterior process is admittedly greater in the negro. Nevertheless, the flatness of the negro's foot has become proverbial, and has given rise to the saying that "the hollow of his foot makes a hole in the ground." As a racial characteristic of the aboriginal negro, the flatness of the plantar arches has been disproved by Herz and Muskat in recent publications. The former has shown conclusively in a large number of observations made in Africa that a well-developed and easily apparent plantar arch exists far more constantly in the negro as there found than in an equal number of Europeans. While this is doubtless true, there can, on the other hand, be little uncertainty that the homely observation of the contrary condition in the American negro has some basis in fact. Abundant opportunity for superficial examination of adult negro feet in this country brings with it the impression that flat foot is present in the negro with unusual frequency as compared with the white. The present investigation is offered as incomplete, in so far as the number of observations is too small for binding conclusions, but as being rather convincing in its results, nevertheless.

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There were used as material for the observations herewith presented eighty-eight feet of adult negroes who were walking patients in the wards of the Cincinnati Hospital. A large proportion of them were under treatment for venereal disease. Eight of these forty-four were women. The men were practically all engaged in heavy laboring occupations. Impressions of the feet were taken by the iron and tannic acid method. Attention was paid particularly to the flatness as shown by the impression and to the condition of the great toe. Of this series but 16.2 per cent. of the feet lacked both hallux valgus and marked flattening of the arch. Hallux valgus without descent of the arch was present in 27 per cent., while marked flat foot was observed in 56.8 per cent. Of the cases of flat foot 92 per cent. had accompanying hallux valgus.

For the sake of comparison a series of impressions of the feet of white patients was taken. Their occupations were noted and were found to be about the same as those of the negroes. Thirty-four feet were examined in twelve men and five women. Of this number 59.2 per cent. had neither hallux valgus nor flat foot. Hallux valgus without flat foot was present in 35 per cent., while but 5.8 per cent. had flat foot, being two cases in both of which hallux valgus was present. It was furthermore noted that 41 per cent. of the white feet presented hallux valgus, with or without flatness, while in the negroes this percentage was 79.5. This frequency of hallux valgus seems of special importance, since it may be considered purely as the result of deforming foot gear.

Although, as before remarked, the number of observations is too small for definite conclusions, the variation in the figures is quite striking. Not only is flat foot much more common in the negro, comparatively speaking, but distortion of the great toe is relatively twice as frequent as in the white.

In the belief that an interesting comparison would result, impressions were taken of the feet of twenty colored children between the ages of thirteen and three years. Of the forty feet examined 75 per cent. had normal feet; 25 per cent. had flat foot, of which 80 per cent. were associated with hallux valgus. Hallux valgus was present in 25 per cent. of the whole number.

By far the greater number of negroes in Cincinnati have more or less admixture of white blood in them. On this account note was made of the color of all the adult negroes examined. There were noted as dark 34, as of medium or light color 54. Of those noted as dark 53 per cent. had flat foot and 70.5 per cent. had toe valgus. Of those classed as medium and light 59 per cent. had flat foot, while 87 per cent. had toe valgus. It would thus appear that these deformities were somewhat more frequent in the lighter colored than in the dark,

although the difference cannot be considered great. In fact it appears that, considering the small number involved, this difference can be ignored.

Were the number of observations sufficiently large it would seem justifiable to draw the following inferences:

1. Flattening of the arch of the foot is much more frequent in the American negro than in his white neighbor.

2. Hallux valgus is likewise more frequent in the negro than in the white American.

3. The well-arched foot occurs in the American negro with sufficient frequency to establish it as the normal.

4. While flattening of the arch is more common in the negro child than in the white, the normal foot preponderates decidedly.

5. From this it would be fair to conclude that the flat foot of the adult American negro has developed after the period of childhood in the greater number of cases.

6. The deforming effects of footwear are much more evident in the adult negro than in the white man of the same class. This is shown by the fact that decided valgus of the great toe is much more frequent.

There require to be explained the cause of the frequency of flat foot in the negro child and its increase in adult life. The great frequency of rickets in negro children is well recognized, and its manifestation in bowlegs and knock-knee is quite familiar. This alone would account for a considerable portion of the flat foot in children. However, it will be noted that even in these hallux valgus was present in 80 per cent. of the flat-footed. This, together with the marked frequency of hallux valgus in the adult, would make it seem likely that the effect of shoes in distorting the feet is especially marked in the negro, both child and adult. This might be explained by the fact that the negro foot is wide in its anterior portion, and, therefore, especially prone to compression. The length of the heel would, however, seem also to merit consideration. It would have the effect of shortening the shoe for the forepart of the foot, since it virtually displaces the ankle forward.

It would seem that a negro's foot cannot be covered with a white man's shoe with impunity.

Should future investigation agree with the above findings it would become necessary to abandon the idea that a flat plantar arch is an hereditary and racial characteristic of the American negro, but this condition would have to be regarded, in part at least, as the injurious result of shoes of improper construction.

The excuse for presenting so incomplete an inquiry is to stimulate further research into a question of importance, not only in its purely

ethnological aspects, but also as it pertains to the theory of development of one of the most frequent deformities of all civilized people.

	<i>Adult negro.</i>	<i>Adult white.</i>	<i>Negro children.</i>
Number of feet examined	88	34	40
Percentage of flat feet	56.8	5.8	25
Hallux valgus without flat foot	27.0 per ct.	35.0 per ct.	5 per ct.
Without flat foot or hallux valgus	16.2 "	59.2 "	75 "
Hallux valgus present in	79.5 "	41.0 "	25 "
Of flat feet hallux valgus present in	92.0 "	100.0 "	80 "

STUDIES ON THE ANTAGONISTIC ACTION OF DRUGS.

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I. INTRODUCTION.

THE question whether a drug which excites a given structure can remove the effects of another drug which depresses the same structure cannot be considered as answered. Recent evidence—as the work of J. C. Rothberger¹ on the antagonism of physostigmine and curare, and that of A. P. Mathews² on atropine and pilocarpine, and that of Stokvis³ on digitalin and quinine—favors this view, without being entirely decisive. Accepting the theoretical possibility that an excitant can remove the symptoms produced by a depressant, there still remains the question whether the excitant really removes the depression or whether it only masks it through the excitation. It would seem, *a priori*, that the former can only be the case when the excitant prevents the depressant from combining with the protoplasm, as, for instance, when an alkali prevents the action of an acid. In these cases the antagonism is chemical or physical. If, however, both the depressant and the excitant combine with the protoplasm, as is supposed to be the case when, for example, pilocarpine and atropine act simultaneously, it must be assumed that they both produce their action. If in this case no noticeable phenomena result, this is not because the drugs exert no action, but because the resultant of the actions is zero. For example, it is quite easily conceivable that a cell depressed through starvation may be restored temporarily to its original activity, say by an increase of temperature, and may for a time behave like a normal cell. Nevertheless, it is far from normal; it will probably show chemical, functional, and structural changes, and will, for instance, fatigue

¹ *Plüger's Archiv*, 1901, Bd. lxxvii, p. 117.

² *American Journal of Physiology*, vol. vi, p. 207.

³ *Virchow's Festschrift*, 1891, Bd. iii, p. 349.