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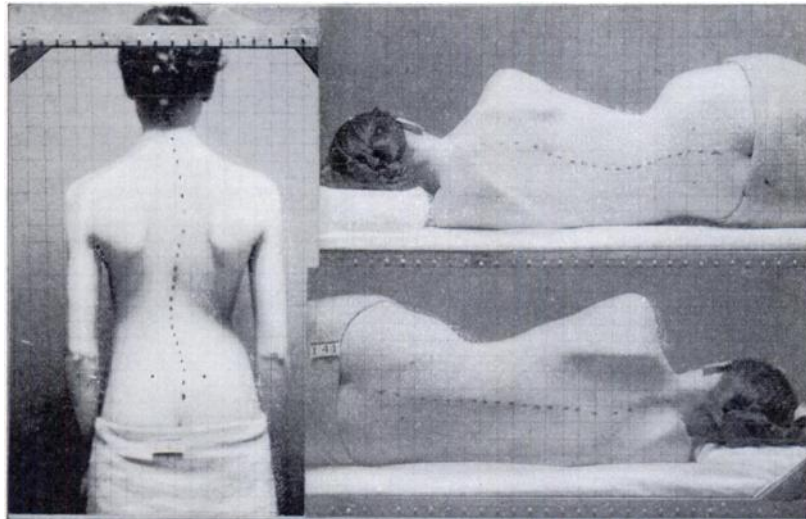
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## BED POSTURE AS AN ETIOLOGICAL FACTOR IN SPINAL CURVATURE.<sup>1</sup>

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THE problem of the influence of bed posture in the production of spinal curvature has attracted my attention for a number of years, and I have taken photographs of cases in which a complete history of habit of sleep upon one side was obtained. These cases



represent both side postures, and resemble one another so closely that the accompanying photographs may be considered typical. The first figure shows the curve as seen when the patient is stand-

<sup>1</sup> Based on studies made in the curvature clinic of the Boston Children's Hospital.

ing; the second, when in the habitual sleeping posture; and the third, when in the reversed position.

The curves are explained by the fact that the hips and shoulders are the broadest parts of the trunk and support the ends of the spine, leaving the middle portion suspended between them. The head also, unless a pillow of sufficient thickness is used to keep it in line, tends to slope down toward the mattress and assists in their formation.

The period of sleep is one-half to one-third of the growing time of the child, and, consequently, the pressures and strains of an habitual sleeping posture have an opportunity to influence the growth of the vertebræ and ligaments and shape them in accordance with their relative positions in the curve.

The cases studied show marked rotation, and although we cannot attribute such rotation to the sleeping posture, yet it is doubtless true that any asymmetry of the vertebræ caused by unequal growth in the habitual sleeping posture will lead, in standing and sitting positions, to complex stresses upon the various bones and ligaments, and will result in increased curvature with rotation.

In the eight cases in which a complete history of habitual bed positions was obtained, the fundamental curves correspond to the curves produced in the normal individual with a flexible spine when lying upon the corresponding side, but modified by rotation. In no case with such a history have I found a curve not thoroughly consistent with this etiology.

Histories of bed postures are, however, difficult to get, since parents are usually ignorant of the sleeping positions of their children. I am convinced that if we could ascertain them for all curvature cases, a considerable number would be explained in this way. Furthermore, it is not improbable that habitual postures at school and at home are more or less determined by the shapes of the vertebræ and the lengths of the supporting ligaments, and are manifestations of attempts at easy attitudes necessitated by such faulty bones and ligaments.

#### SUMMARY.

1. Lateral bed postures curve the spine.
2. Habitual lateral bed postures, by favoring the growth of the spine on one side and retarding it on the other, tend to fix such a

curve by establishing physical changes in the bones and ligaments.

3. The time in bed is so large a part of the growing period that the distortion may become pronounced.

4. Inequality in the vertebræ and the supporting ligaments brings about asymmetrical strains in standing and sitting postures, resulting in increased curvature with rotation.

5. Bed posture thus becomes an important factor not only in the etiology of curvature but in its treatment.