LOW BACK AND NECK PAIN

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CAUSES AND CONSERVATIVE TREATMENT

By

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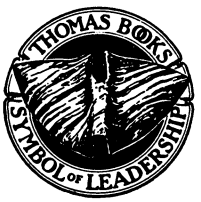

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PREFACE

The primary purpose of this publication is to assist the patient in understanding the cause of low back and/or neck pain and to give him reasons for specific methods of conservative treatment. It is also for the physician, who with the many demands on his time, can not go into detailed explanation of the anatomy and principles of the problem, but can prescribe the publication to the patient for this information.

It is my hope this material will be made available to all those who have been taught the erroneous idea by Western Civilization that the "strut attitude" is the ideal human posture.

The evolution of the conservative treatment, as well as the exercises for the most part are products of my own research. A more extensive scientific explanation is available in a book I wrote for the medical profession which was published in 1965 by Blakiston Division, McGraw-Hill Book Company entitled *The Lumbosacral Spine: Emphasizing Conservative Management.* It includes references to the many who have greatly contributed to this problem. It also includes some of the figures which are being used in this publication. This is also true of a chapter I wrote on low back pain for Harrison's *Principles of Internal Medicine,* original and subsequent editions published by McGraw-Hill Book Company.

The Low Back and Neck Postural Exercise Instruction Sheets in the back of this book can be reproduced by physicians for use in their practice without further permission from the author or the publisher.

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PART I

THE LOW BACK

INTRODUCTION

"Back pain? It's all in your head!" If you are the victim of low back pain you have probably heard these words many times. Whether it comes from a doctor, from a television commercial, or from a well-meaning friend, this judgment is usually incorrect. That is why we begin this publication with a very important piece of information: the vast majority of all low back and leg pain is caused by physical changes and therefore can be helped by means of exercise and corrective postural positions.

The idea that back pain is a mental problem is an old one and is at least in part accurate. Since anxiety increases your susceptibility to pain it is actually playing a secondary role, and the true cause of the pain is physical in character.

This brings us logically to the reason why this publication is being written. It is our intention to give you the information that will make it possible for you to *understand* both the mechanical changes which cause the pain and the *reason* for corrective measures which alleviate the pain.

A WARNING

The crushed intervertebral disc is the most common cause of low back and leg pain. There are, however, many serious diseases of the spine such as broken or crushed vertebrae, infections, and in rare cases, cancer of the vertebrae; but these diseases are in no way related to ruptured or collapsed intervertebral discs. It is essential, for this reason, that you be examined by your physician before you start this program. This is especially true if you are in your middle or later years and have other physical disabilities not related to the spine.

Chapter I

THE BACK

IT IS IMPORTANT THAT YOU HAVE A CONCEPT of the anatomy and function of the spine in order better to understand the cause of your pain.

In order to get a rudimentary understanding of the gross structure of the spine, it might be helpful to picture a tall stack made up of alternating hockey pucks and jelly donuts (Fig. 1). On top

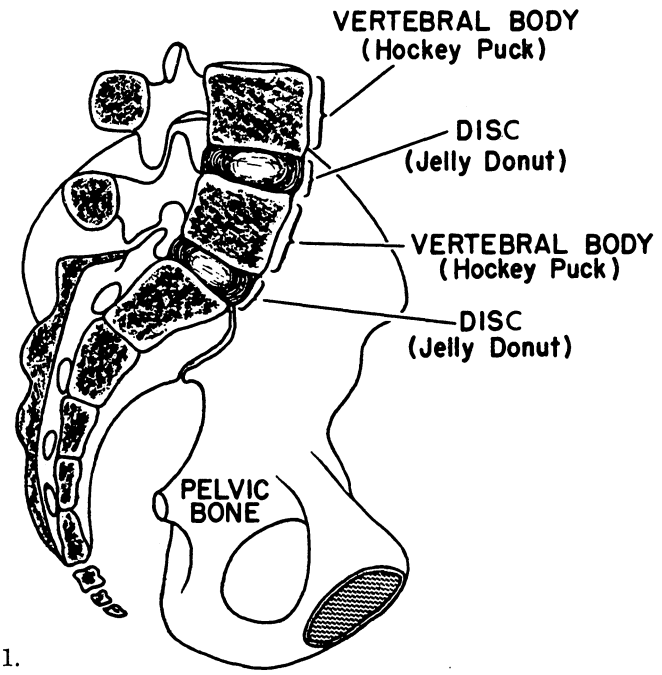

Figure 1.

is a puck, cushioned by a jelly donut, on top of another puck, cushioned by another donut, etc. The entire stack is alternating

hard-soft, hard-soft; therefore, there is no grating of hard on hard. The soft donuts also give the stack flexibility so it can bend in any direction. But what keeps it from either falling over or coming apart? To answer that question we have to move from the very simple to the more complex and look more closely at the actual structures of the spine. In an actual spine the jelly donuts would be replaced by "discs." Those discs are very much *like* (slightly stale and tough) jelly donuts. The hockey pucks, however, would be replaced by bony structures called "vertebrae." While the pucks are simple and round, each vertebra is complex and irregular. Perhaps a picture of a vertebra would be helpful at this point (Fig. 2). As you can see there is a solid "body"

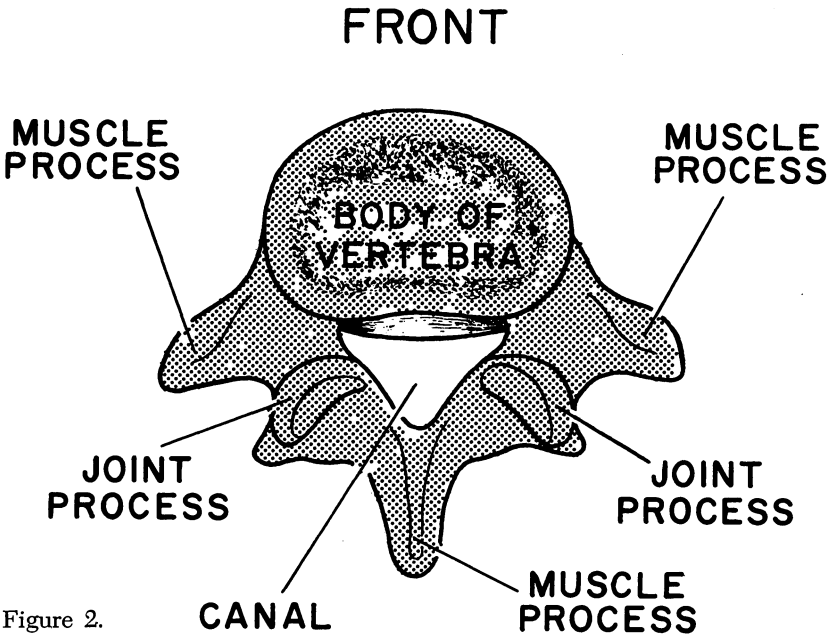

Figure 2.

which serves to support the weight which presses down upon it from above. This body is analogous to the hockey puck in the earlier example. At the rear of each vertebra is an opening or "canal" through which the "spinal cord" and nerves pass. This "cord" is an important part of your body's "communications system" since through it pass messages from distant parts of the

body reporting on pains and other sensations. Through it also pass messages from the brain telling certain muscles to function in certain ways. There are two kinds of bony projections or "processes" attached to each vertebra.

1. Muscle processes extend to each side and to the back of the vertebra and are the projections to which the muscles attach.
2. Joint processes extend up and down to unite with joint processes from adjoining vertebrae to form joints. It is these joints that permit the spine to bend and twist. If they were not there you would have to walk rigidly and mechanically much like the common notion of a robot's walk.

You must realize we have been talking about a very *tall* "stack." There are twenty-nine vertebrae in all. Of these twenty-nine, only twenty-four are separated by discs. The other five are fused solidly together and form the back of the pelvis or the sacrum. The twenty-four nonfused, or "movable," vertebrae are divided as follows (Fig. 3A): there are seven in the neck, twelve in the back of the chest to which the ribs are attached, and five in the lower back between the ribs and the pelvis. The lowest five movable vertebrae are known as the "lumbar" vertebrae and are the ones primarily concerned in low back pain. You will notice in figure 3B the location of the bottom (or fifth) lumbar disc is indicated. As we will see, this is usually the first disc to rupture and is thus a major factor in most low back problems.

Although we will be mostly concerned with the five lumbar vertebrae in our discussion of low back pain, we must also give some attention to the first pelvic (or sacral) vertebra since it, in effect, acts as the "table" upon which the movable spine rests. Figure 4 focuses on the area of greatest potential distress. In Figure 4 you see the lowest four lumbar vertebrae and the pelvic vertebrae from the rear. A portion of the canal has been cut away so you can see the progress of the spinal cord with its branching nerves. Also, since the rear of two of the vertebrae have been removed, you can see the bodies of these as well as the discs which separate them. In Figure 5 you can see even more clearly the

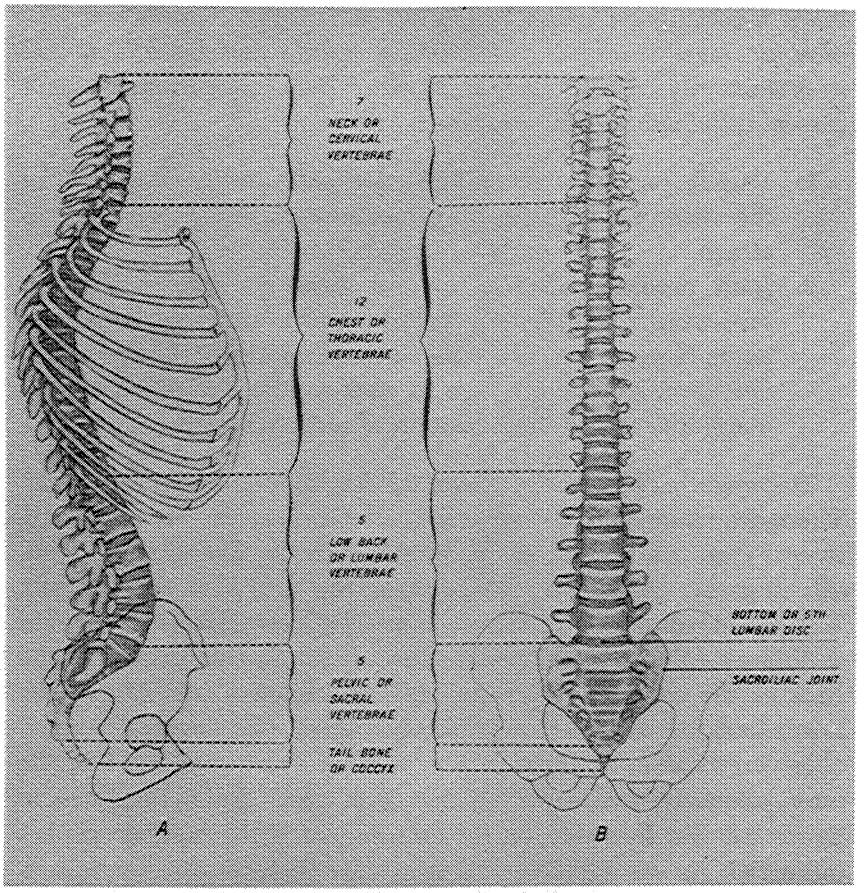

Figure 3.

relationship of hard to soft, vertebra to disc. You can also note the passage of the nerves around the bony processes. This is, in actuality, a picture of a damaged low back. In fact your own lower spine may look very much like this one. You will notice the disc separating the lowest lumbar and the first pelvic vertebra has ruptured. You will see this picture again in the next section, for if you understand what this picture represents then you will understand your problem.

Let us now summarize the important anatomy of the back. We are concerned here primarily with the *spine*. The spine is mostly