TOTAL POSTURAL REPROGRAMMING

3rd Edition

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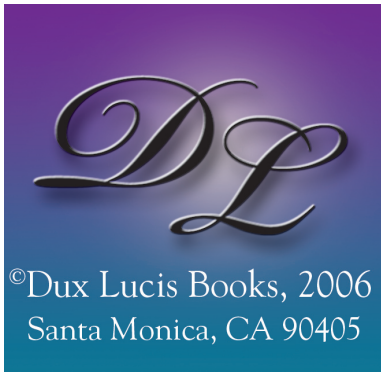

Published by Dux Lucis Books, Santa Monica, CA 90405, USA

Design and graphic art by Martha Logan, Logan Graphics

Originally published in French ©1996, Bernard Bricot,
Reprogrammation posturale globale.
Sauramps Medical, France.

Printed in the United States of America

ISBN# 978-0-615-50839-9

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INTRODUCTION

In this ever-changing world, one thing is becoming constant: health care is extremely expensive, it does not always provide satisfactory treatment and rarely does it cure. Many are the pathologies whose treatment is basically symptomatic.

Current trends now consider a variety of symptoms to be *inevitable over time* and the therapeutic approaches selected to address them follow suit: a gamut of *anti*-symptoms therapies that can best be described as suppressive rather than curative.

This observation could be no truer or more amply substantiated than in the treatment of a wide array of complaints ranging from degenerative joint disease (DJD) to scoliosis or disk herniation in which the mechanical factor, while absolutely crucial, is seldom considered.

A prolapsed disk may suddenly be caused by a clumsy movement or by an effort in rotation. But, oblique or twisting strain applied to that disk over a number of years is really what has caused the degeneration of the nucleus pulposus and weakened the posterior vertebral ligament. The resulting hernia in the neural canal is simply the terminal expression of an underlying chronic condition.

Scoliosis is not ***unavoidable***. It is a disease of the postural system. Waiting for a breakdown of the spinal column to pose a diagnosis is waiting until after the damage has been done. Treating scoliosis with a corset without understanding the postural system is preparing the ground for a disappointing therapeutic result.

The above pathologies and many others share the same origin: abnormal strains caused by an imbalance in the tonic postural system and its various receptors. These strains will cause tilts and rotations in various parts of the skeleton and joints. They will also generate abnormal strains on the joint capsules, cartilaginous surfaces and ligaments. These strains are responsible for various chronic, painful pathologies and are the reason for many consultations.

As for back pain and rheumatic pain, a wide range of therapies have been developed in recent years and though they can be credited for being less iatrogenic than previous ones, it remains true that 47.6% of the French population suffer from back pain resulting in a loss of 26,000,000 work days yearly. In the US, the percentage of back pain sufferers stands even higher at a staggering 57% with over an estimated 10 billion work days lost yearly to this almost ubiquitous complaint. Back pain and rheumatic pain are an enormous burden on our national healthcare budgets. This enormous price paid reflects the results of a symptomatic treatment approach across the board. The situation is identical in other European countries.

The growing popular appeal of manipulative therapies has changed nothing in these statistics. Resetting a vertebra is fine; knowing why a vertebra is out of alignment is better.

Our study of the tonic postural system has enabled us to better understand and identify the different associated pathologies and to tackle them by using more etiological treatments based on resetting the body's dysregulated postural sensors. This is why we call our modality **Total Postural Reprogramming (TPR)**.

We have not invented a new medicine but, a new way of looking at medicine. This study of the different receptors (or data input) of the postural system and their dysregulation will give us the opportunity to draw from and combine different medical specialties. Contrary to conventional wisdom, the inner ear is NOT that which, in adulthood, enables us to position ourselves in space, or determine our position with regard to our environment. Rather, this is the work of three other specialized systemic sensors. In order of priority, they are: **the feet, the eyes and the skin.**

Total Postural Reprogramming (TPR) is indicated not merely in cases of back pain and rheumatic pain, but also in a wide variety of pathologies that account for a substantial part of consultations to both general practitioners and specialists.

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NORMAL AND PATHOGENIC POSTURES

INTRODUCTION

As early as the beginning of the 20th century, Charles Bell had posed the one question that attempted to solve the problem of posturology: How do humans manage to maintain an upright or inclined position against a blowing wind? Clearly, they possess the ability to self-adjust and correct any deviation from the vertical plane.

What is the nature of this sense?

In the nineteenth century, the role of most of the sensors that work together to maintain the upright position in humans had already been discovered. The importance of the eyes was brought to light by Romberg, proprioception of the paravertebral muscles by Longet, the influence of the vestibule by Flourens and muscular sense by Sherrington. The first school of posturology was founded in Berlin in 1890 by Vierordt.

More recently, in 1955, J. B. Baron, of the Posturography Laboratory at the Hôpital Sainte Anne in Paris, published a thesis on the importance of the oculomotor muscles in posture.

Henry Otis Kendal defined posture as “a composite whole combining the positions of all of the articulations at a given moment in time.” Even more recently, J. Paillard introduced the concept of “the situated body and the identified body,” whereby he defined them as a psycho-physiological approach to the concept of the body image.

The first data concerning postural adjustments associated with voluntary movement were provided by Babinski in 1899, based on his observations of coordination disorders relative to posture and movement in cerebellar patients. Since then, it has been established that in both humans and animals intentional movement is accompanied and followed by postural phenomena.

In fact, the various studies that have been carried out in the last hundred or so years have led us to consider the postural system as “a structured whole” with multiple sensors having several complementary functions, namely, to:

- overcome gravity and maintain an upright position;
- overcome external forces;
- position the body in its surrounding space-time structure;
- enable and prepare movement; guide and reinforce it.

To perform this neurophysiological exploit, the body utilizes various resources:

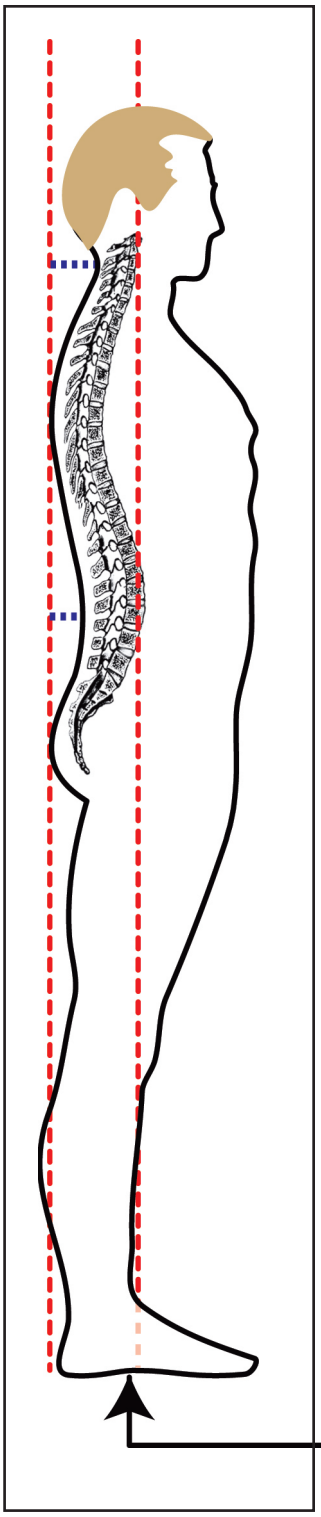
- exteroceptors position the body with regard to its environment (touch, vision, audition);
- in any given position, proprioceptors position the different parts of the body with respect to the whole;
- the superior centers incorporate the cognitive processes, select the strategies and treat the information from the two sources mentioned above.

However, there is a “postural invariable” which represents the ideal position of the body in space at the present stage of our phylogenetic evolution.

1.1 - NORMAL AND PATHOLOGICAL STANCE: EFFECTS

1.1.1- NORMAL STANCE

A – SIDE VIEW (SAGITTAL PLANE)

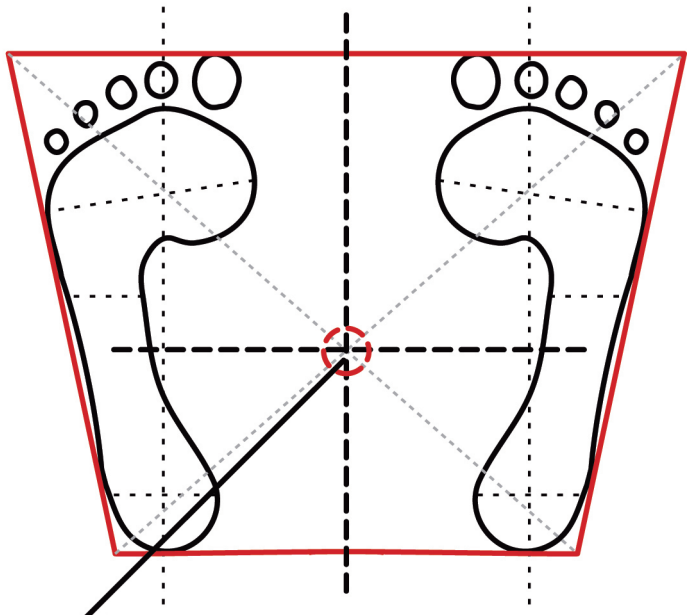


The vertical axis of the body (fig.1-1) runs through:
- the vertex;
- the odontoid process of C2;
- the vertebral body of the 3rd lumbar vertebra;
- and projects onto the ground in the middle of the sustentation quadrilateral, midway between the feet.

The scapular and gluteal planes are aligned.

In adults, the lumbar sagitta should be between 4 and 6 cm (3 fingers' width).
The cervical sagitta should be from 6 to 8 cm (4 fingers' width).

Fig. 1-1.
Normal posture profile



Projection of the center of gravity of the body in the middle of the sustentation quadrilateral

B – FRONTAL PLANE

Different lines must be horizontal (fig.1-2):

- the line running across the two pupils;
- the line running across the two tragi;
- the line across the mouth;
- the scapular girdle;
- the line running across the two nipples;
- the line running across the two styloid processes of the radius bones;
- the pelvic girdle.

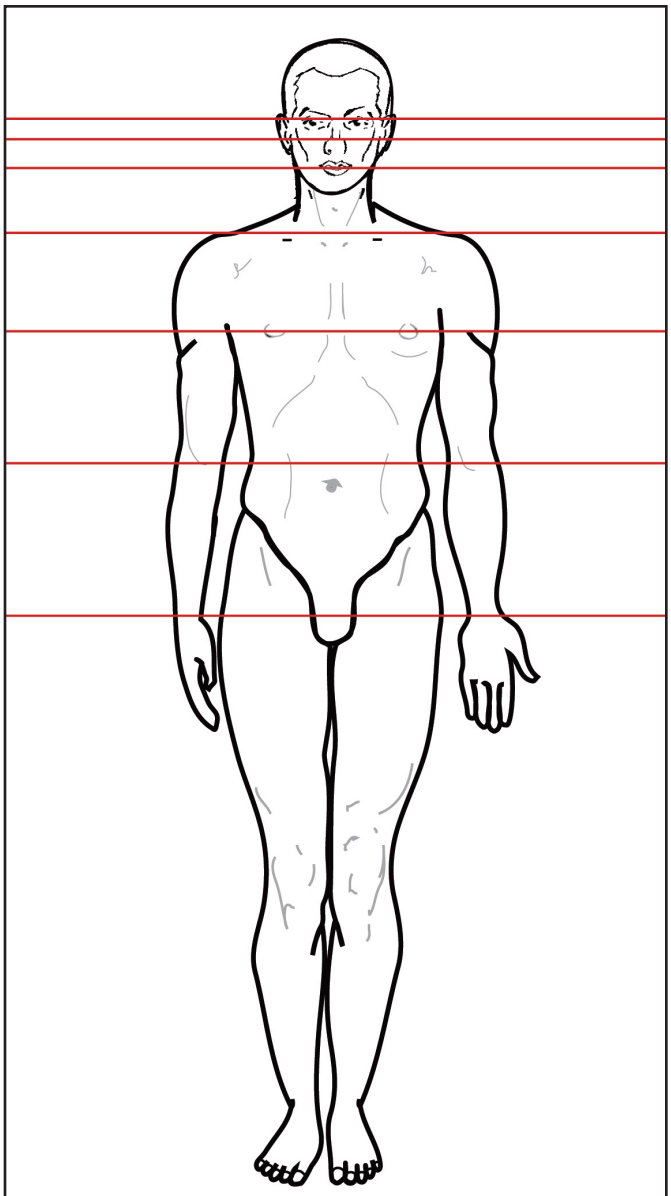


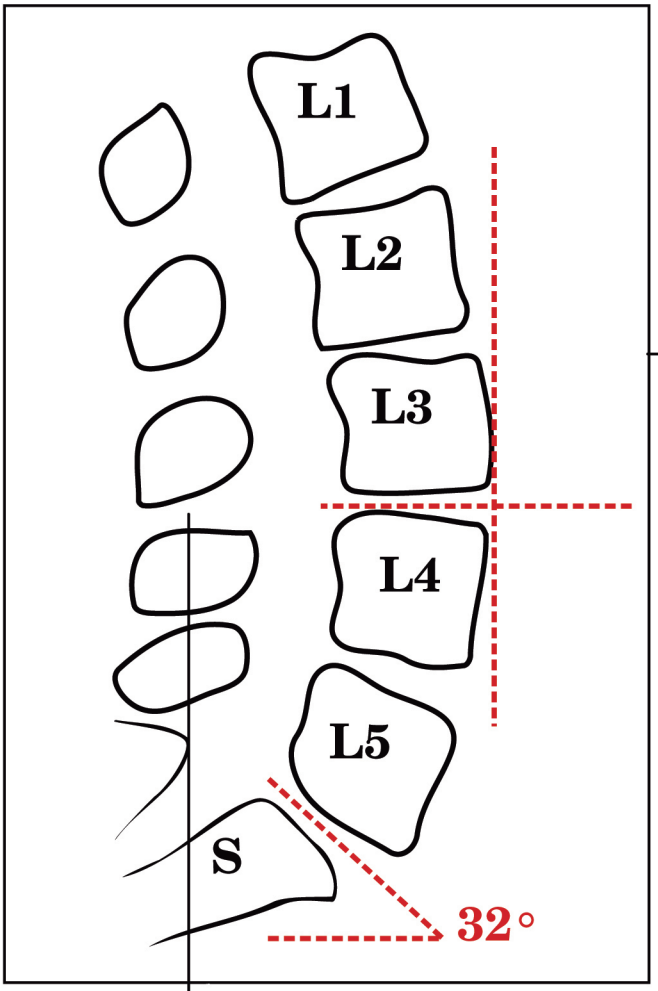
Fig. 1-2.
Frontal view: normal subject

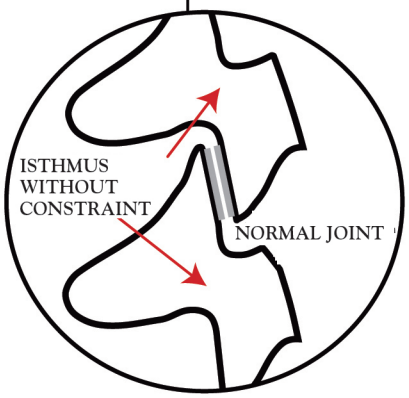
Certain posturologists consider that a slight tilting of the girdles is normal and physiological. We do not share this opinion because the correction of the postural system, as we see it, enables complete correction of any tilting.

It is true that our laterality and our right-handed education may lead to asymmetry but, this phenomenon cannot be considered normal. This becomes a stark truth when considering that the few subjects who are perfectly balanced never suffer from back problems.

The feet rest on the ground harmoniously and symmetrically. A slight valgus inherent to a two-footed stance may be considered as physiological but, this slight valgus disappears during testing as soon as the subject switches to a one-footed stance.

NORMAL POSTURE





Normal vertebral articulation view

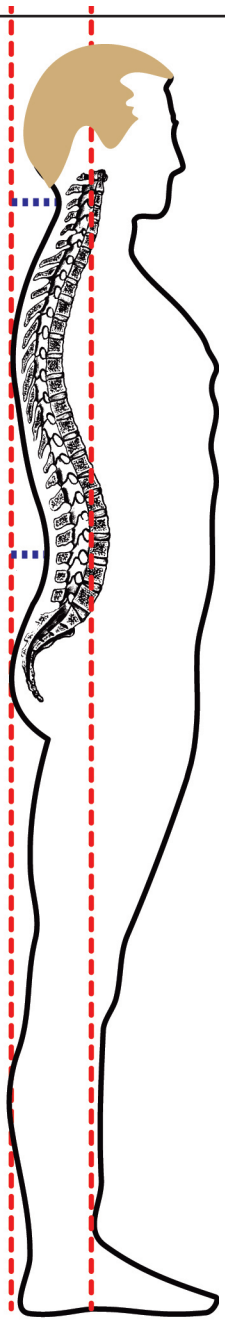


Fig. 1-3.
Normal spine

In a balanced posture:
the sacral angle is 32°
-disk L3/L4 is perfectly horizontal
-vertebra L3 is the most anterior
Lumbar lordosis is harmonious, the articular processes have a harmonious relationship, there are no abnormal strains, there is no pressure on the isthmus zone and mobility is normal

C – HORIZONTAL PLANE

The two shoulders and the two buttocks are perfectly aligned (fig.1-4).

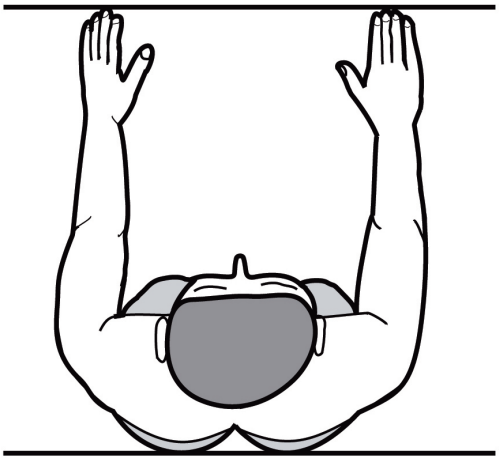


Fig. 1-4.
Horizontal plane: normal subject

There is no rotation at either the scapular or pelvic girdle.

CONCLUSION

Normal phylogenic posture is as described above. It is found in less than 10% of the population who seem to match the above criteria. These subjects almost never suffer from spinal, girdle or joint pain.

D – THE STAGES OF NORMAL GAIT

- first contact with the ground is made by the outer edge of the heel;
- the two following stages are similar to a cross fade;
- the contact of the outer band of the sole;
- the touchdown of the forefoot from the 5th to the 1st metatarsal bone;
- the big toe is the final point of impulse before the foot leaves the ground.

NORMAL POSTURE
=
ABSENCE OF STRAIN, HARMONIOUS RELATIONSHIPS
=
NO PAIN

1.1.2 - MORE THAN 90% OF PEOPLE PRESENT POSTURAL DISEQUILIBRIUM

This imbalance is studied in the three planes:

- the anteroposterior plane;
- the frontal plane;
- the horizontal plane.

A – THE ANTEROPOSTERIOR PLANE

Four principal parameters must be studied:

1) the scapular plane;
2) the gluteal plane;
3) the cervical sagitta;
4) the lumbar sagitta.

Only presentation A is normal; fig.1-5 shows the 4 main postural disorders:

- B scapular and gluteal plane are aligned, but the sagitta are too deep;
- C posterior scapular plane;
- D anterior scapular plane;
- E the scapular and gluteal planes are aligned, but the sagitta are too shallow.

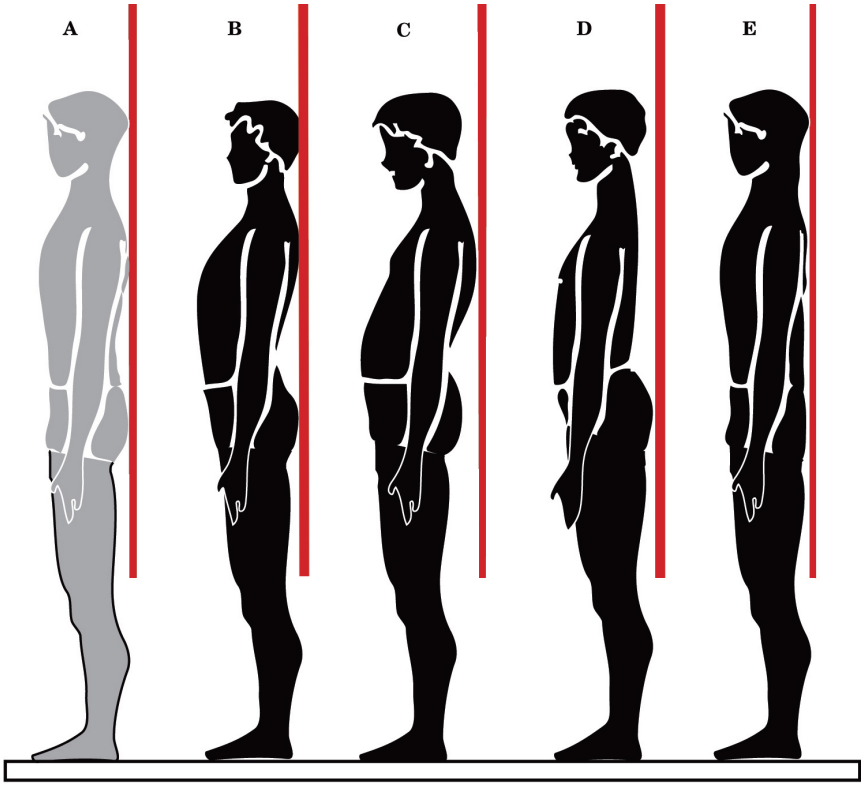


Fig. 1-5.
Tonic postural disequilibrium: profile

It is interesting to study two additional parameters:

- the vertical projection descending from the tragus should be no more than 2 fingers' width anterior to the external malleolus;
- the distance between the occiput and the posterior sagittal plane should be less than 2 fingers' width.

These postural disorders in the anteroposterior plane are closely linked to deformations of the back of the foot (see chapter 3) and to the walking movement. The consequences are abnormal strain appearing at different levels.

The scapular plane and gluteal plane aligned:

- increased curvature (B) is attributable to valgus feet;
- decreased curvature (E) is attributable to varus feet.
- posterior scapular plane (C) reflects flat feet;
- flat back cum anterior scapular plane (D) reflects double-component feet.

Though foot abnormalities are the main factors involved in an anteroposterior compensation, they are not alone. Other sensors such as the manducation system (the stomatognatic system extended to include swallowing and breathing) or the skin may also alter the position of the head and chest (see chapters 4 and 6).

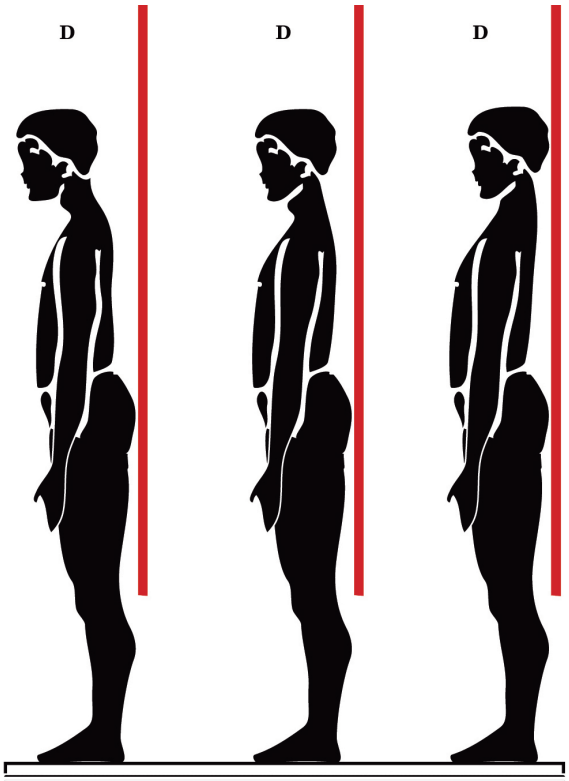


Fig. 1-6.
Anterior projection of the center of gravity

This is a frequent and particular disequilibrium: a forward, leaning of the head and/or chest. The subject presents an anterior scapular plane, but the head is even further forward, the center of gravity is displaced forward and the vertical projection descending from the tragus passes through the toes.

This disequilibrium is accompanied by a high degree of strain on the paravertebral muscular masses which are forced to compensate for the forward shift in the center of gravity, and often reflect multiple compensations.
–Two other receptors are involved in its genesis:
1– the manducatory system (class ll, division 2)
2–abdominal scars, notably along the anterior meridians

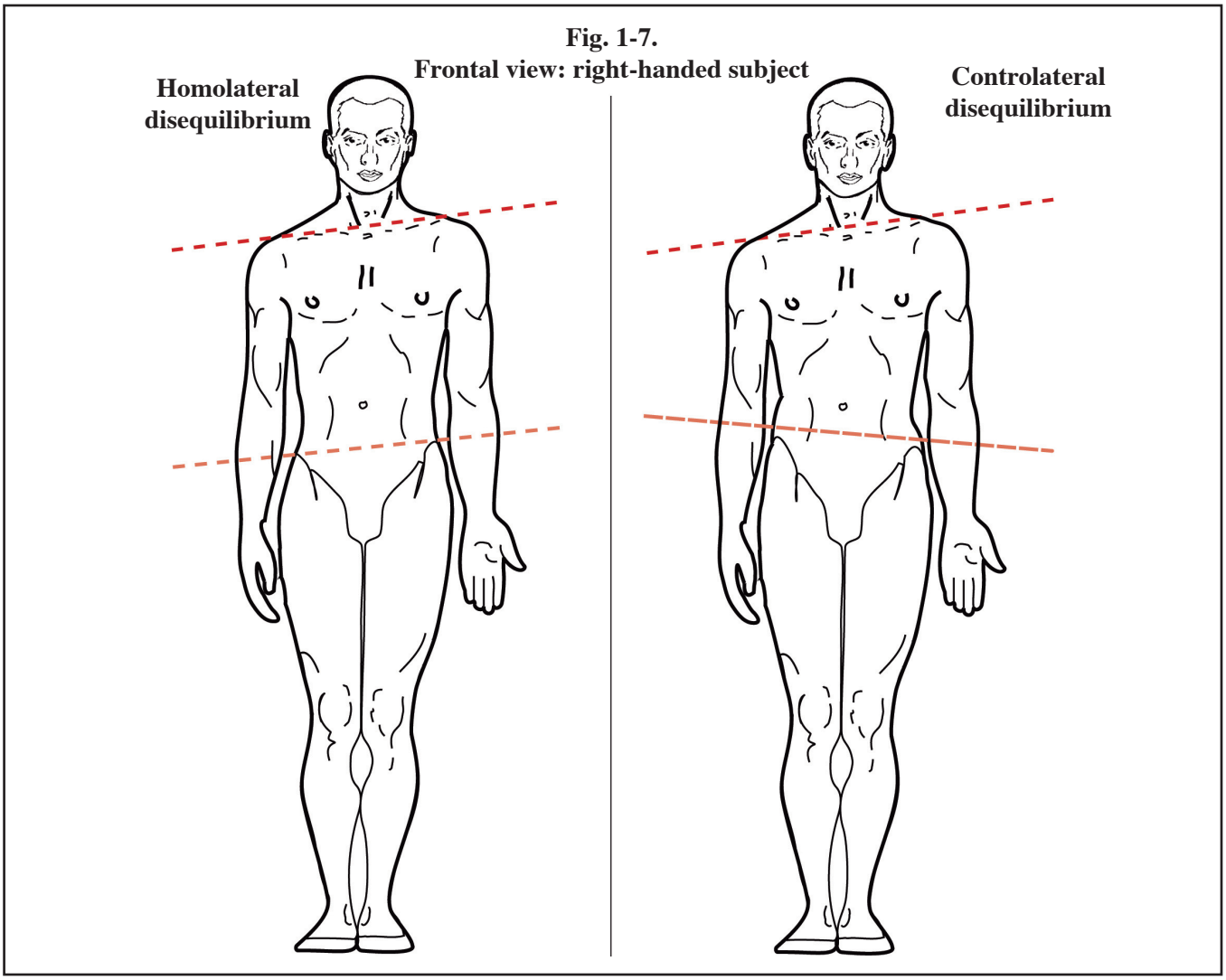


Fig. 1-7.
Frontal view: right-handed subject

B – POSTURAL DISORDERS: FRONTAL PLANE

Postural disorders are more easily noticeable at the girdles.

B.1) Tilting of the shoulders:
In the absence of any referential framework, this tilt is easier to evaluate at the level of the wrists (processus styloideus radii).

B.2) The position of the pelvis:
To assess the position of the pelvis, the highest point of the medio-iliac needs to be considered. Indeed, it is not unusual to note a discordance between the classic anterior and posterior parameters which reflects a helicoidal torsion in the pelvis around the main axis.

B.3) Other parameters:
To be analyzed in the study of the different sensors. These are:

- the line across the two pupils;
- the line across the two tragi;
- the line across the two nipples;
- the axes of the body and of the head referring to the vertical;
- proportional facial balance.

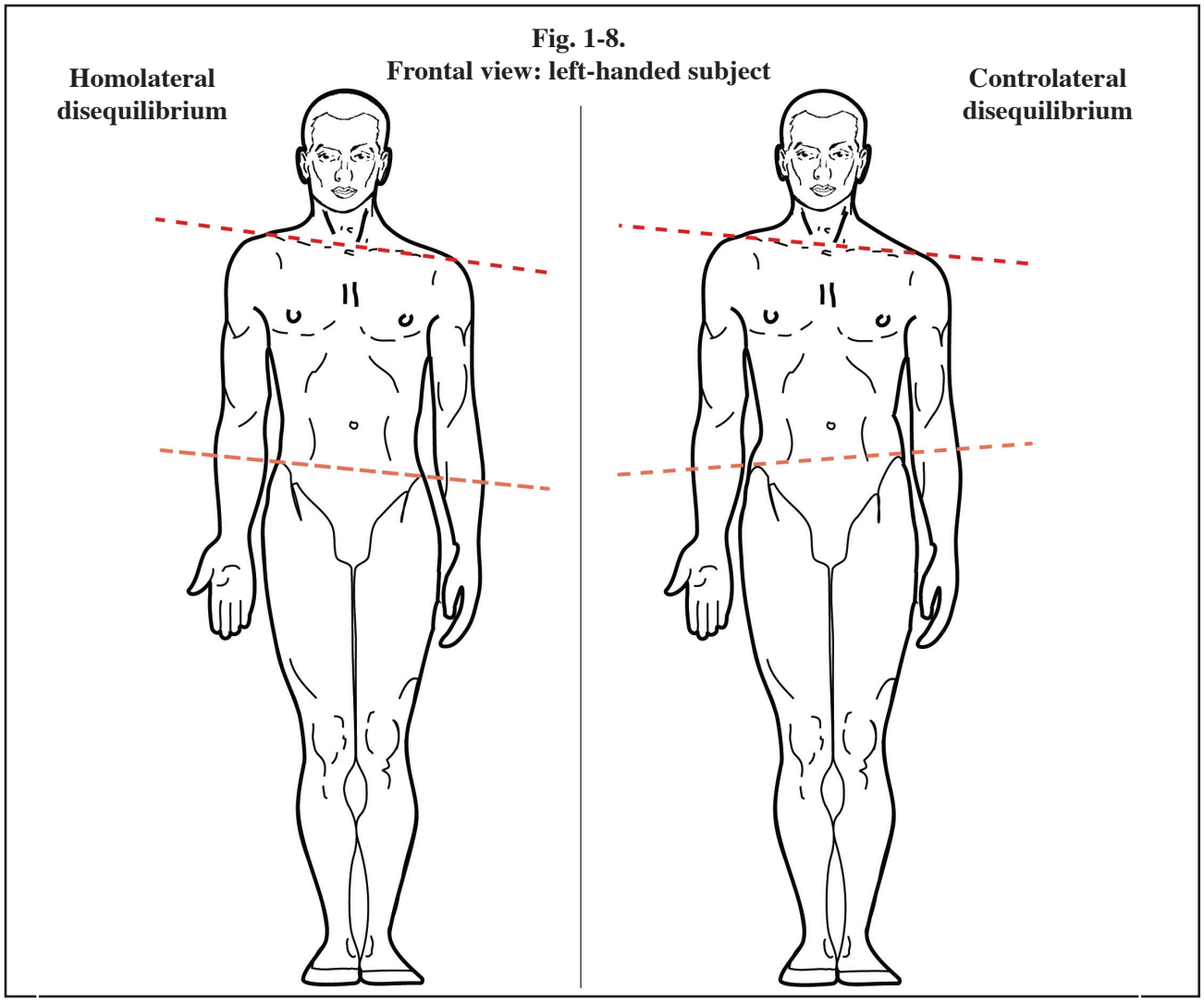


Fig. 1-8.
Frontal view: left-handed subject

B.4) Three fundamental notions should become apparent:

4.1 – The disequilibrium of the scapular girdle is linked to laterality :
- the left shoulder is generally higher in a right-handed subject (fig. 1-7);
- the opposite is true for the left-hander (fig. 1-8);
- exceptions to the above reflect problems of laterality.

4.2 – When the shoulders and the pelvis tilt in the same direction:
- the ocular receptor is the first disturbed;
- if the initial cause is the foot, this will result in a disequilibrium of the pelvis (medio-iliac measured) opposite to that of the shoulders.

4.3 – There are always neuromuscular and micro-circulatory deficiencies in the arm on the side of the lower shoulder (generally, that of the patient's laterality).

The problem of a true or false shorter leg will be tackled later (see chapter 6).

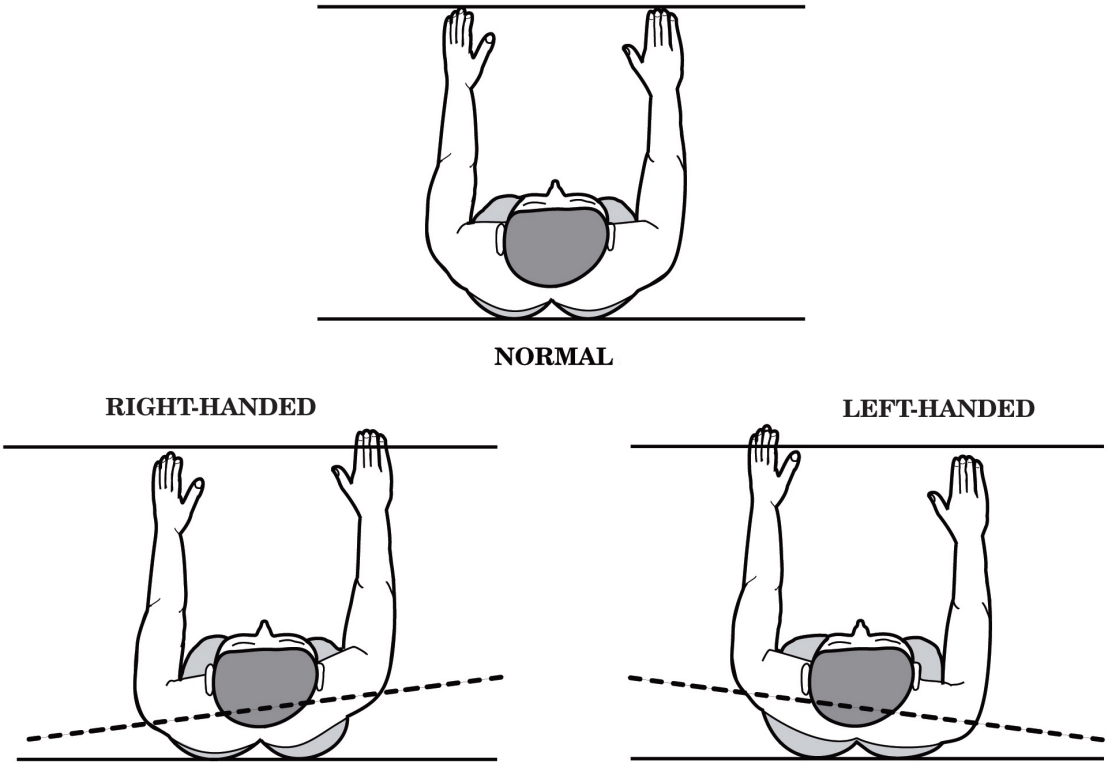


Fig. 1-9.
Horizontal plane:
Tilting and rotation will appear each time that a sensor is dysregulated asymmetrically.

C - POSTURAL DISORDERS: HORIZONTAL PLANE

This is the study of the rotation of the shoulders and the pelvis involving:

- the anterior or posterior ilium and
- the anterior or posterior scapulum

The strains are thus torsional and/or rotational.

The rotation of the scapular girdle is strongly influenced by laterality (fig. 1-9).

Rotation of the pelvis may occur in the same or opposite direction as that of the shoulder (fig.1-10).

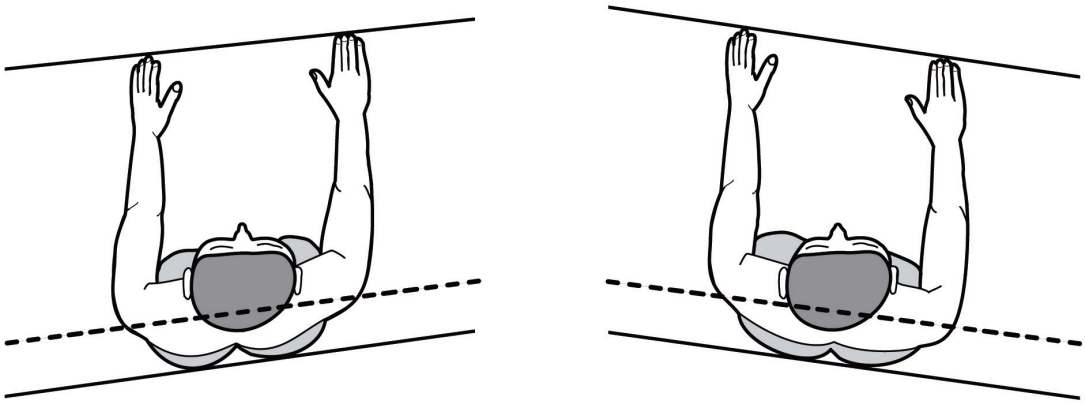
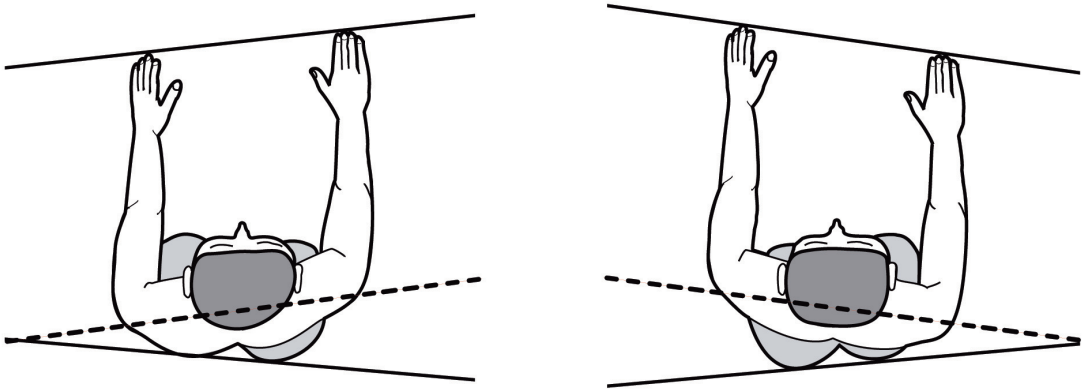


Fig. 1-10.
Postural disorders involving rotation of the scapular and pelvic girdle are accompanied by tiered blockages of the vertebra.



CONCLUSION

Postural disorders occur in all three dimensions. Because they are often associated, they generate disorders which may be rather complex. They are responsible for excessive strain on the articular processes and excessive demands on muscles and ligaments.

Posture is not determined by isolated muscles, but by groups of muscle groups often termed, "postural muscle chains." Any dysfunction or dysharmony in these **proprioceptive muscle chains** will lead to tonic postural disorders.

POSTURAL DISORDERS
=
STRAIN

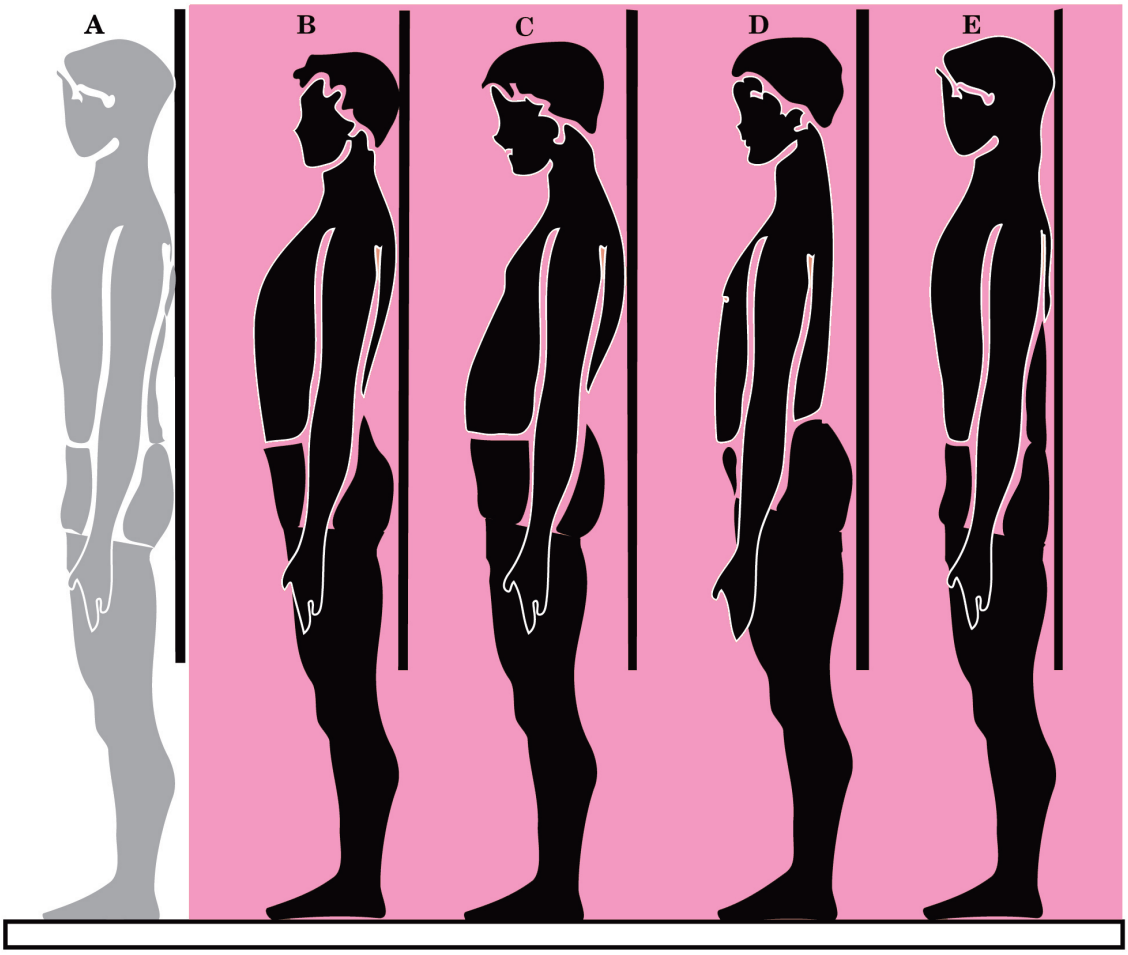
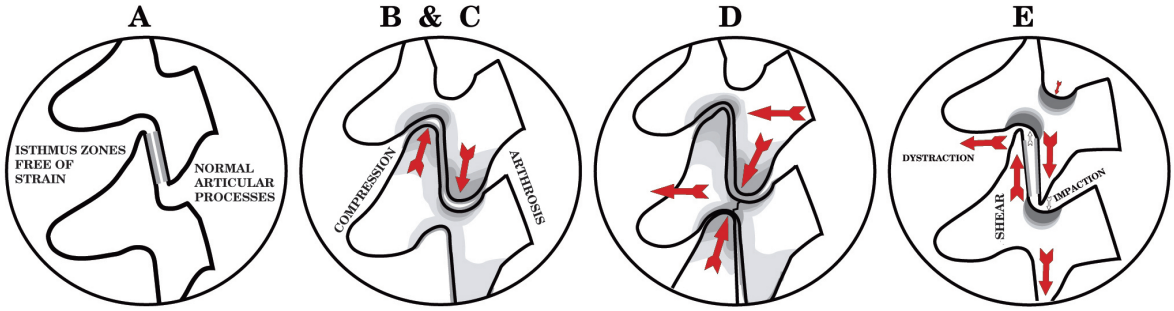


Fig. 1-11.
Postural disorders in the sagittal plane and the articular processes affected by these:

A-Normal subject
B-Aligned planes, increased sagittal curvatures
C-Posterior scapular plane
D-Aligned planes, reduced sagittal curvatures
E-Straight posture with decrease of lumbar and scapular curves



1.2 - STRAIN-BASED PATHOLOGIES OR VARIOUS MANIFESTATIONS OF POSTURAL DISORDERS

1.2.1- THE CONSEQUENCES OF POSTURAL DISORDERS

Postural disorders are at the root of mechanical strain (abnormal pathological forces), these strains can be:

- compression;
- dystraction;
- in rotation;
- in torsion;
- shear;
- impaction, etc.

They may act at different levels:

- joints;
- capsules;
- osteo-ligaments;
- muscles;
- tendons;
- aponeuroses, etc.

Which may trigger numerous consequences:

- in the medium-to-long term, the onset of pain, stiffness and muscular contractions;
- restricted joint range of motion connected to muscular blocks contributes to the onset of arthrosis, (“Life is movement,” STILL).

Restricted motion and reflex contractions will cause a drop in muscular performance, exhaustion of glycogen reserves and acidosis. For athletes, it is not only a cause of cramps, torn ligaments, aching muscles and tendonitis, but also the cause of lowered performance, or non-improvement in performance, in spite of training.

Even oblique strains lead to functional vertebral blockage in the medium-to-long term.

Therefore, it is understandable that the usual treatments (physiotherapy, analgesics and anti-inflammatory drugs) are unsatisfactory. They only address the consequences, not the causes.

Manual techniques are etiological only in cases of traumatic blockages (by far the least frequent), but not in most cases linked to functional disorders. This explains the number of recurrences and the need for an ever increasing number of therapy sessions.

Other fashionable therapies, which may all bring benefits, can be included here. However, these never address the mechanical strain, and thus, fail to cure the patient.

The neuromuscular and microcirculatory consequences explain both non-systemic pain -- which intensifies in some areas – as well as post-traumatic or post-surgical complications such as:

- algo-neuro-dystrophic syndromes;
- consolidation delays;
- pseudarthrosis;
- tendosynovitis;
- delays in wound-healing.