

## A good posture for all ages

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Posturology, which is today defined an across the board branch of medicine and is thought in the world's major universities (such as "La Sapienza" in Rome), is more than ever involving and gaining the active interest of various medical specializations.

Professional figures such as orthopedists, pediatricians, dentists, ENT specialists, physiotherapists, vestibular disorder specialists, oculists, optometrists, etc., often experience patient's issues which ultimately involve also posturologists.

Thus, it became necessary to create a dialogue among these professional figures where it didn't already exist; a dialogue in which the posturologist adopts a global approach interacting and communicating with different specialists. In this way the patient can be observed and evaluated in a comprehensive manner.

After this brief introduction, we may now move on to the topic to be discussed, i.e., spine disorders in terms of bearing and structure. During the evolution of species, the spine has gradually been "perfected" by nature in order to achieve the most appropriate form for the quadrupeds and reaching the erect posture of the bipeds.

Let us now analyze and understand the reasons why nature created a spine with curvatures; these technical reasons will allow us to find out why any alteration or distortion of the spine from its "ideal functional form" will almost certainly result in pain, stiffer movements, fragility, functional limitations, etc.

Physical and mechanical tests carried out in laboratory showed that curvatures act as shock absorbers as they allow us to resist much greater loads than a spine with no curvatures at all or with reduced curvatures.

The above ratio has been thus simplified: spine resistance is represented by a mathematical formula, i.e. it is given by the number of its curvatures squared plus one. So if the spine had only one curvature, the mathematical result of its resistance would be "two"; in case of a spine with two curvatures, the

resistance would be “five”; if the curvatures were 3, as provided for by nature, the resistance would rise to “ten”.

The data clearly show the importance of the spine curvatures and explain how the reduction, rectification or alteration of the latter may lead to different disorders. Along with greater stiffness and reduced load resistance, the spine would also be more likely to develop disc protrusions and hernias. Moreover, fewer curvatures with reduced width would lead not only to pain but also, by reflex, to disturbances in those areas where nerve roots bring messages from the nervous system (figure 1).

One single altered vertebra (i.e., in lordosis or rotated) is enough for it to result over sensible or painful when touched. This usually causes disturbances throughout the concerned innervation area.

I have come across many cases in which just one slightly “injured” vertebra, even lightly out of place, was able to create disorders all over the body: reduced physical endurance, chronic fatigue, reluctance, pain, etc. Of course, people should not “tar everything with the same brush” since disturbances may be caused by various reasons, and a doctor’s task is to distinguish, diagnose and then point out what is causing the disorder.

These few lines aim to educate readers on the importance of single vertebrae and therefore on the condition of the entire spine.

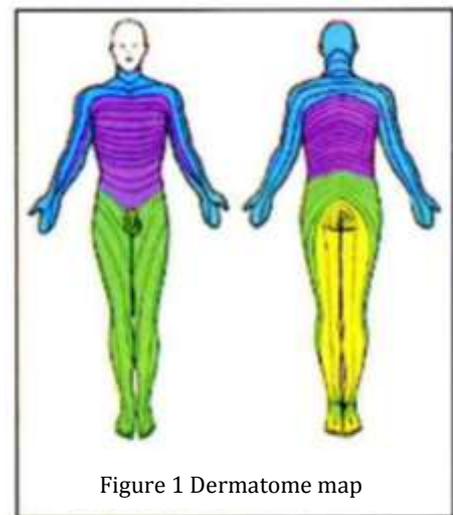
It is not a chance that many diseases affecting the internal organs are caused by root disturbances, due to the action of tensions on specific vertebrae; and this is where we find well known disorders such as radiculitis, neuralgias, colitis, heart rhythm disorders, intercostal pain, erectile dysfunction or frigidity, irregular periods, etc.

Back to the spine, if the latter is exposed to incorrect muscular tensions, erroneous exercises or postures, it can become deformed in various ways but mainly due to either an accentuation or a rectification of lordosis (besides causing scoliosis, which we will not consider for the time being).

Each hyperlordosis will inevitably lead to a hyperkyphosis in another area of the spine, and each reduced or rectified lordosis will cause hypokyphosis or rectification of dorsal and/or cervical regions.

A segment of the spine with minor or rectified curvatures is more likely to develop greater stiffness, which implies less plasticity and consequently more fragility.

Furthermore, in some areas, a reduction, or in the worst of cases a loss of functionality may occur.



It is also important to say that reductions or rectifications (or worse, inversions) of curvatures expose the spine to a greater risk of disc protrusions and hernias.

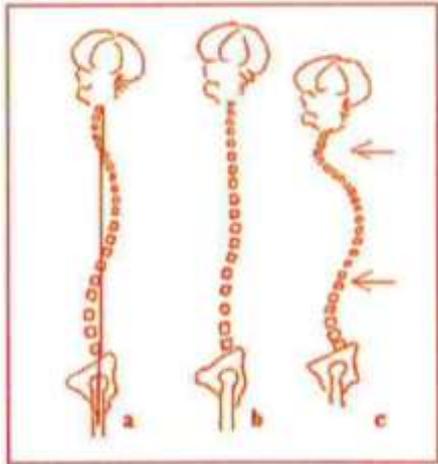


Figure 2 physiologic spine (a); rectified spine (b); spine with apparent kyphosis, which is actually the result of two wide lordosis (c).

In order to better understand these concepts let us have a look at a vertebral column that shows how kyphosis is nothing but the passage between two lordosis (Fig.2). The deeper the lordosis, the wider the kyphosis. However, our eyes have the natural tendency to notice what curves outwards rather than what curves inwards and this has led experts to fight hyperkyphosis (the hump) for years instead of acting on the reduction of hyperlordosis, which would have automatically reduced hypokyphosis. Action has always been taken on the effect rather than on the cause. Today the classic corrective gymnastics, which strengthened the spine in case of

hyperkyphosis, is no longer practiced. Alternatively, action is taken through postural exercises that aim to lengthen muscles back into shape instead of strengthening them, since by strengthening muscles they become even shorter (hypertonic).

Let us now have a look at the causes that lead to an increase of curvatures and therefore to hyperlordosis and hyperkyphosis (figure 2).

An excess of nervous tensions, anxiety, worries, physical work, lack of specific physical exercise and stretching, etc., translate into an excessive muscular tone, which in turn leads to shorter muscles, compressed joints, tendency to inflammations, arthrosis and incorrect postures.

How was it possible for the humankind during its evolution to forget to do stretching and relaxation exercises that confer a proper muscular tone? By observing cats you can notice how rarely they suffer from arthrosis or joint disorders and how, in spite of old age, they remain autonomous until the end of their lives. They do stretching exercises every day, more than once a day, after each nap...

We thus understand why nature provided the cat's instinct with such inputs, allowing it to maintain an outstanding elasticity and dynamic capability.

It is interesting to note that cats, which have always used their agility to provide themselves food, instinctively do more stretching exercises than dogs (who mainly depend on their owners) and thus result less prone to arthrosis.



So what can be done to correct and improve the spine posture, especially in case of hyperkyphosis, in which the head inelegantly protrudes forward? Why do we tend to become hunched with age? Until what age can action be taken to improve one's posture?

If we stop and observe, we will realize that people have the natural tendency to become shorter with age. We get shorter because of the experienced tensions, which cause muscular retractions that force us to "bend" under the weight of years and worries.

One might summarize this process, which follows us throughout our lives, with the following concept: "life forms us and deforms us".

An interesting point is that just as our bodies become deformed "because of life", this process may be inverted towards an adjustment and elimination of excessive tensions, retractions, in order to re-deform the body and bring it towards a younger form, recovering its functionality and good aspect.

One must never forget the importance of movement, correct exercise and walking. But this is not enough: when the physical structure is stiff and compromised walking may result difficult if not impossible.

Today the field of posturology boasts an important new method, a specific therapy that acts globally (i.e. on the muscular chains) and therefore on the whole body, so that the entire physical structure benefits from the therapy.

Without huge efforts and with only 10 minutes work a day one can obtain remarkable advantages such as: improvement of elasticity and mobility of the spine and of the joints, reduced pain and consequently more freedom and autonomy in everyday life.

You will find out that it is never too late to adjust the spinal structure!

If the body is abandoned to itself and to time passing by, it will worsen in every aspect, including posture; but if correct action is taken, the body will always readily comply with the laws of physics, even from the perspective of improvement.

Our bodies will thus improve with specific postural exercises.

These are some suitable exercises that can also be performed at home (in case one is unable to turn to a specialized center), with the help of a postural tool that acts on various disorders depending on the problem (Fig. 3 and 4).



In figure 3 we can see a simple exercise aimed at laying the spine out to restore its correct curvatures; the neck and the lower back also stretch through specific breathing techniques.

In figure 4 we can see how, by using our arms, the action on neck and shoulders becomes even more effective. After performing such exercises you will feel “taller and lighter”.

Following a regular and well-planned daily exercise routine is enough to make you notice improvements even before you can imagine.



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