

Neck's posture, cervical problems, temporomandibular apparatus and relationship with idiopathic scoliosis and spondylolisthesis : One case treated with the biomechanical anthropometric ergonomic (B.A.E) method

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Neck's posture, cervical problems, temporomandibular apparatus and relationship with idiopathic scoliosis and spondylolisthesis: one case treated with Biomechanical Anthropometric Ergonomic (B.A.E) Method. 15 years old girl with neck and back pain with scoliosis, spondylolisthesis and inversion of the physiological curve of cervical lordosis treated with Biomechanical Anthropometric Ergonomic Method checked after one year we see the full restoration of cervical lordosis and a marked general improvement.

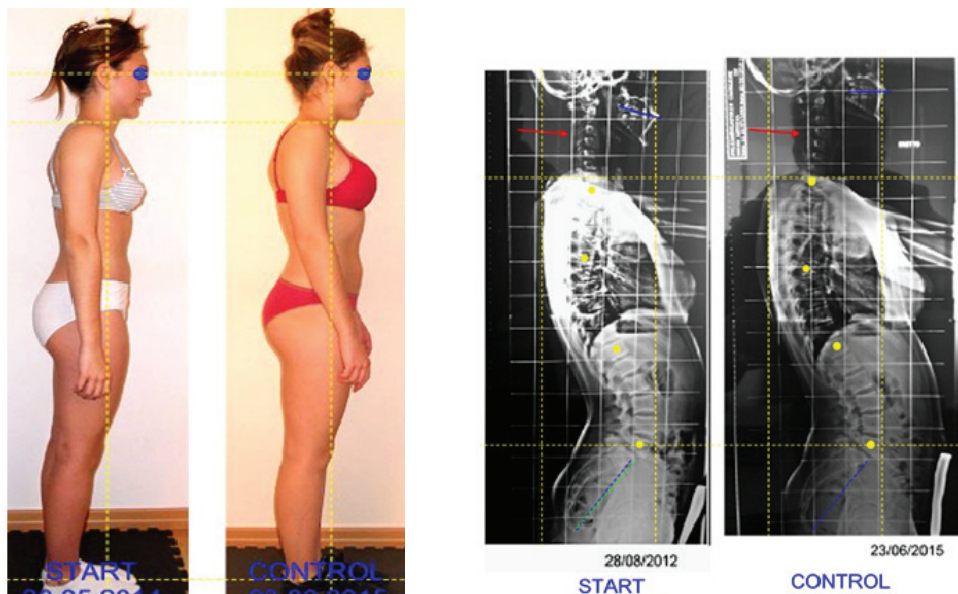
Keywords: Posture, Biomechanical Anthropometric Ergonomic method, TMA, malocclusion, scoliosis, spondylolisthesis.

A 15 years old girl complained the frequency of pain to the neck and lumbosacral area. The first time that the evaluation has been performed using the B.A.E. method, she reported to have finished an orthodontic treatment, designed to improve the alignment of teeth, for almost an year; she also reported that during and after the treatment had persistent pains.



fig. 1

As we can observe in Fig. 4, the person has a spondylolisthesis between L5 and S1, an inversion of physiological curve of the cervical lordosis with an evident and broad hyperkyphosis. It also has an important scoliosis, which is clearly visible in the radiography, Fig. 5. Photos, Fig. 1, 2, 3, support what previously stated. The spondylolisthesis and together, the wrong position of the whole sacrum, represented by an inclination on the sagittal plain, form a bad situation. Inevitably this condition leads to reactions in the recruitment of the muscles, such as to find a compensation that prevent from further slippages which could lead the person in the inability to move and consequently, to a worse quality of life.



In fact, this compensation mechanism makes the hyperkyphosis and then the inversion of the cervical lordosis curve; this happens because of a major involvement of the spinal musculature of the cervical and dorsal area in the most front parts. The possible consequence is a high risk of cervical hernias, because in this area there are two conflicting needs:

- Keep the alignment of the head with horizontal;
- Oppose the spondylolisthesis.

The person, in addition of what just said, presents an incorrect occlusion particularly low in the back part; this brings the sternocleidomastoid muscles to be the fixer point on the sternum to attract the head down, thus increasing cervical tensions (stomatognathic parachute closed). This is not an easy condition to manage for our brain; becomes necessary to use other parts of the muscles including the upper part of trapezius muscles, the splenius and elevator muscles of the shoulder blades. In this situation, sometimes, appear tensions that frequently generate headache, neck pain, shoulders and arms pain.

As we can see in the X-ray control performed on 23.06.2015, Fig. 4, the physiological curve of cervical lordosis appeared again and the occlusal plane is now in an horizontal position (blue line), differently from what appeared in the previous year, Fig. 4 (START blue line parallel to the occlusal plane leaning downwards).

In the frontal plane, scoliosis is only moderately correct, however, we have to consider two factors:

- First the correction has been made on the subject to allow sufficient freedom to permit the normal growth of the person;
- Second the X-ray was performed in the absence of tutors, this means that the structure of the person is changed according to a correct canalisation.

We can also observe an improvement of the spondylolisthesis between L5 and S1 clearly visible thanks to the increase of radio opacity of vertebral contours to highlight an

increased amount of calcium, a clear sign of reduction of the inflammation in the area. We can also observe a better verticalization of the sacrum, Fig. 6 (lines blue/green).
(X-rays are performed in the upright position and with the same device).

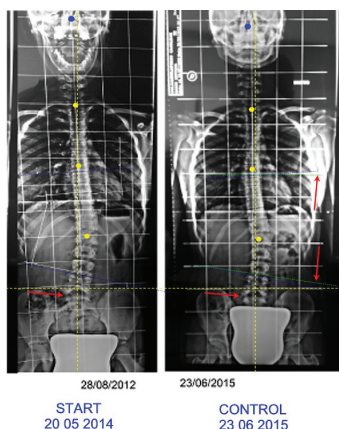


Fig. 5

If we look at the frontal plane we see an improvement in the lumbosacral area, fig. 5 (red arrow below) and an improvement of scoliosis, we can see a more centred lumbar spinal area and better horizontality of vertebral contours indicated by the red arrows on blue/green lines.

The treatment was composed by the use of custom occlusal decoupling plaques built for the recovery of the physiological heights (stomatognathic parachute open) and, at the same time, with podalic tutors consisting of ergonomic shoes and insoles. The modifications of the position of the center of gravity included in the B.A.E. method's criteria, Fig. 7, 8, 9.

The materials used for the construction of the tutors was chosen to allow a good canalization of postural corrections and, simultaneously, a modest destabilization of the body, to let in a large range of time the possibility of structuring a big number and ranges of motor engrams; this to permit a good and natural growth of the body.

After an year of ergonomic treatment of posture, we evaluated the results with the Biomechanical Anthropometric Ergonomic (B.A.E.) method parameters:

- The person wore tutors for about five hours a day and still use them (systems constitute to the person a new environment more suitable and natural).
- The treatment included sessions of postural resets, performed manually and also using Bodyextension bench, these were scheduled as follows: one session per week for the first three months of treatment, one every two weeks for the next three months.

The results are visible and comparable in Fig. 7, 8, 9.

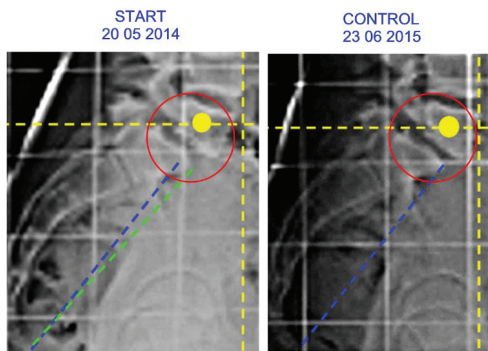
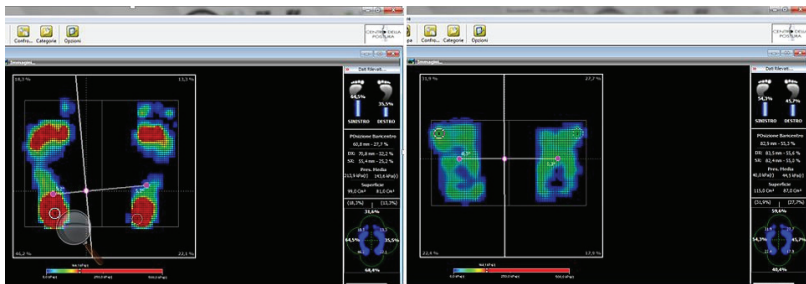


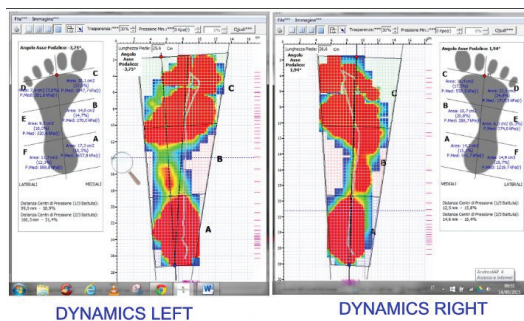
Fig. 6



START
20 05 2014
BAREFOOT

CONTROL
23 06 2015
WITH TUTORS

Fig. 7

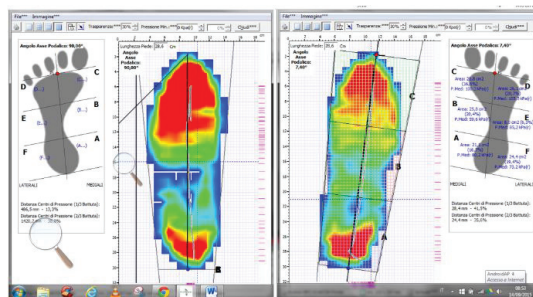


DYNAMICS LEFT

DYNAMICS RIGHT

START
20 05 2014
BAREFOOT

Fig. 8



DYNAMICS LEFT

DYNAMICS RIGHT

CONTROL
23 06 2015
WITH TUTORS

Fig. 9

After about a month of treatment, the subject reported that the pain disappeared and the bodily functionally was normal.

Materials and methods:

Baropodometer Footcheker Loran Eng. 2012
Biomechanic Anthropometric Ergonomic Method (B.A.E.)

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