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ADAPTATION OF THE HUMAN BODY TO MECHANICAL IMPACT

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Summary

The action of mechanical factors on the human body is reflected, whether it occurred spontaneously or was used deliberately by people from certain social reasons, such as habits of some people or for commercial purposes. Attention is pointed on the necessity of advocacy among population for prevention and timely treatment of diseases caused by the action of mechanical factors on the human body.

Rezumat

Adaptarea corpului uman la acțiunea mecanică

În articol se reflectă acțiunea factorului mecanic asupra corpului uman, indiferent dacă acest a apărut spontan sau a fost folosit de către oameni în mod conștient, din anumite motivele sociale, cum ar fi obiceiurile la unele popoare sau în scopuri comerciale. Se accentuează atenția la necesitatea lucrului de iluminare sanitară cu populația pentru prevenirea și tratamentul unor maladii cauzate de acțiunea factorului mecanic asupra corpului uman.

Novelty of Theme

News of the problem is that doctors need to use more capacity to modify the human body by mechanical action in order to correct developmental mistakes and to create conditions for social and psychological comfort to people.

Aim

Explore the two diametrically opposite sides of the long-term effects of mechanical factors on the human body, harmful and beneficial, and pay attention to the need for wider use in medical practice of its positive impact.

Materials and methods

It was studied a wide range of literature on the subject, and made an observations of the dynamics of the mechanical treatment of patients in the clinic of traumatology and stomatology as well as social anonymous survey of young people about their satisfaction with their own body.

Discussions and results

Intentional deformation of parts of the body is not something that only happened in the past (fig.1C). In China today, there is a growing concern among many upwardly mobile middle class men and women that they are too short. Thousands have sought a solution to this problem by having their legs lengthened. This is achieved by a long, painful process involving the surgical breaking of the two lower leg bones in both legs and then using adjustable metal braces that are anchored with steel pins implanted in the bone just below the knees and above the ankles to progressively extend the length by nearly 1/16 inch (about 1 mm.) a day as the bones heal. This widens the gap at the break areas, thereby stimulating new bone growth. As a result, the average patient permanently adds about 3 inches (7-8 cm.) to their height in half a year.

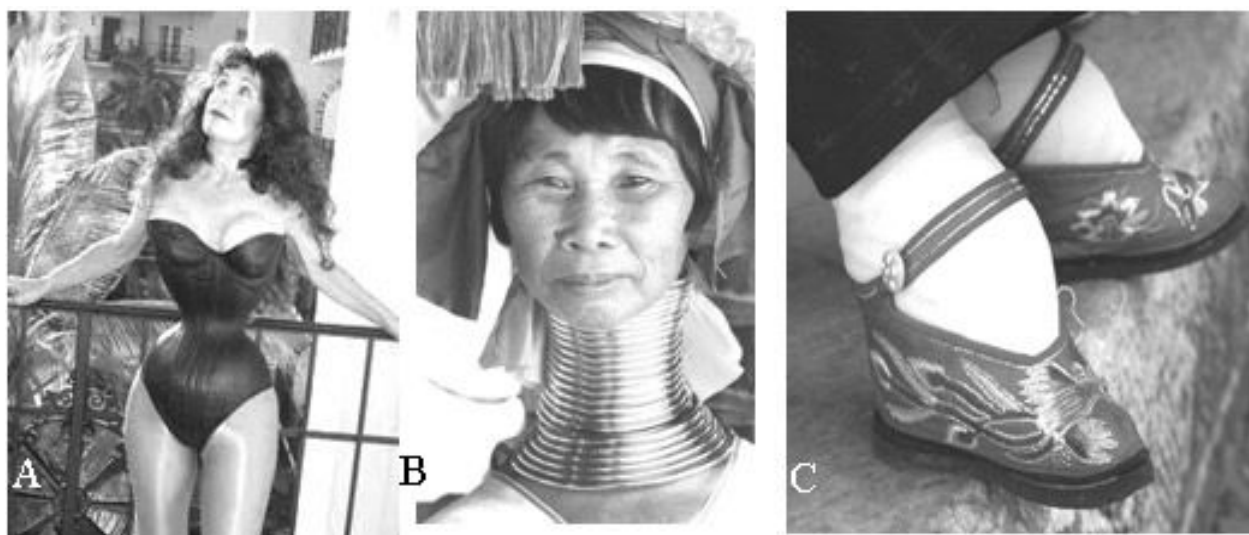


Fig.1. Results of intentional long-term mechanical actions on the human body: A - American Victorian dress and corset enthusiast, B - woman from Padaung tribe of Burma; C - bound feet of china woman.

Intentional body deformation is a common practice in North America today as well. It is customary for middle and upper class parents to have the teeth of their children straightened with retainers and braces. This is a long, costly, and somewhat painful experience that alters the alignment of teeth. In part, it is done to preserve and improve their functioning. However, a strong motivation is to enhance appearance. Nose straightening and other forms of plastic surgery are often done for the same reason, despite the fact that they are painful. It is assumed by parents that these kinds of body alteration will increase the likelihood that their children will grow up to be more successful in life. This was also the motivation of rich Chinese parents in the past who bound the feet of their daughters and of contemporary Chinese who undergo leg lengthening.

Permanent changes to the shape of body parts may be unintended. For instance, wearing leather shoes that enclose the feet makes them narrower than they would be otherwise. Similarly, the practice of women wearing shoes with pointed toes, high heels, and often too small of a size commonly result in a number of painful orthopedic deformities. Driving this outwardly illogical Western cultural practice is the belief that small feet are attractive for women. The American Academy of Orthopaedic Surgeons has reported that 9 out of 10 women in the United States wear shoes that are too small for their feet, and 7 out of ten subsequently have developed painful bunions, hammertoes, or other foot deformities.

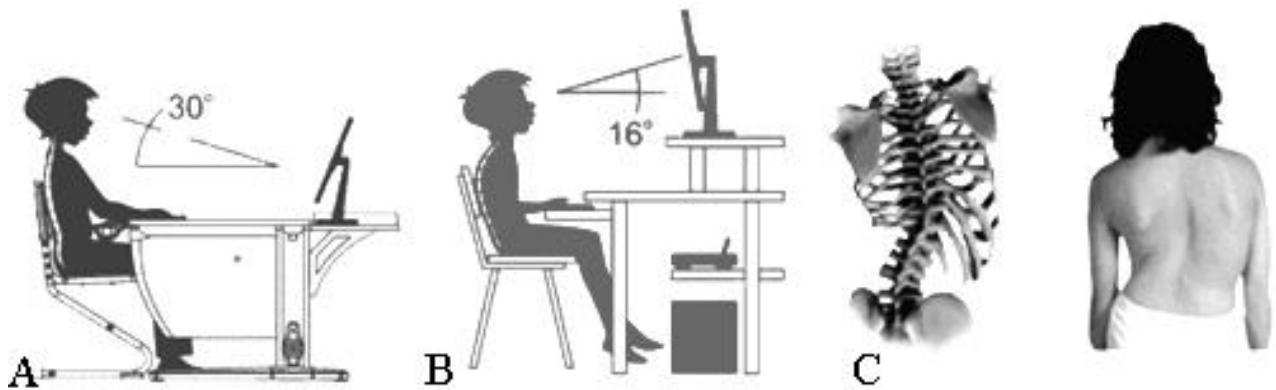


Fig.2. Right position (A), wrong position (B), scoliosis (C).

What makes such developmental adjustments to parts of our bodies possible is the fact that humans have a high degree of physiological plasticity. That is to say, we can be physically molded by our environment during the growing process. Adults are the result of genetically inherited traits that were shaped to a certain degree in each of us by our environment as we grew up.

The Padaung tribe of Burma considered a long neck beautiful (fig.1B). About age 5, girls were introduced to the first neck ring. As they grew, rings were added. Their shoulders were pushed down, making the neck look longer. Also, this showed off the family's valuable metal rings, indicating wealth. I think I'd rather be poor! A woman wore up to twenty pounds of rings on her neck and even more on her calves! A fully stretched neck was between 10-15" long! A woman could not drink from a cup, because tipping her head back would overbalance her and she would fall! She could only drink from a straw. And forget looking at the sky! If a woman offended her tribe, her rings were cut off and she would choke to death, unless someone held her head up! Today, in modern Burma, women sometimes wear rings to attract tourists and make money from photographs. It is the only way for some to make a living. The girls that are started on neck rings do it for "commercial" reasons.

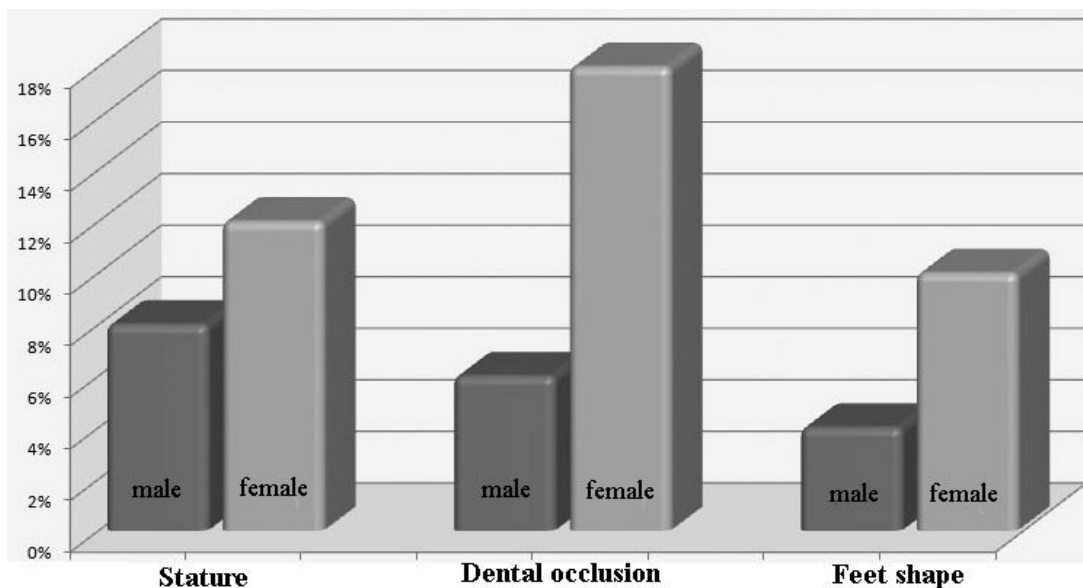
Cathie Jung (born 1937) is an American Victorian dress and corset enthusiast residing in Old Mystic, Connecticut, USA, who currently holds the Guinness World Record for the smallest waist (fig.1A) on a living person. Jung, who is 1.65 m (5 ft 6 in) tall, has a waist that measures 38.1 cm (15 inches). Cathie Jung is a lady who wears corset even when asleep. The-70-year old tinniest waistline woman only removes the corset when she showers.



Fig.3. Orthopedic correction of the dental occlusion (A) and stature (B).

People must take into account the above-said to prevent various negative consequences of the influence of mechanical factors, such as scoliosis, pathological dental occlusion, dysplasia , etc..

Diagram 1. Degree of dissatisfaction with own body.



School years are most favorable for the development of spinal curvature. At this time, children must eat well and if possible to keep physically active. Parents should constantly monitor the child's stature (Fig.2), not allow him long to sit in one position (on the computer, TV, etc.). For the best scoliosis prevention we should pay particular attention to the school desk and satchel size for schoolchild.

Use of mechanical factors must be focused and able to remedy the defects of development as in dental and orthopedic practice (fig.3), because according to our survey 70% of young people would like to change something in their own body. Many grievances are related to the moments that arose out of ignorance or negligence of parents for children.

According to results of social anonymous survey of 100 young people dissatisfaction of stature is 10%, of dental occlusion -12%, of shape of feet – 7% (diagram 1).

Conclusions

1. Knowledge of the effects of mechanical factors on the body is needed to every cultured person in order not to harm their own body or bodies of their children.
2. Role in educational work on this issue belongs to the medical staff.
3. The survey data as well as Moldovan students from other countries indicate that the explanatory work among the population has not exhausted yet.

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