

Journal of Orthopedics Study and Sports Medicine

Genesis-JOSSM-1(1)-08
Volume 1 | Issue 1
Open Access

Some Kinds of Stretching Exercises are not Only Sport but also Efficient Methods in the Therapy of Orthopedic Illnesses and Deformities

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Citation: Karski T. (2023) Some kinds of stretching exercises are not only sport but also efficient methods in the therapy of orthopedic illnesses and deformities. *J Orthop Study Sports Med*.1(1):1-12.

Received: December 16, 2023 | **Published:** December 28, 2023

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Abstract

Authors present examples of locomotor system disorders – in feet, knees, hips, position of pelvis and spine - in context of Syndrome of Contracture ad Deformities (SofCD) and in context of Minimal Brain Dysfunction (MBD).

Why does the Syndrome of Contracture (SofC) develop? This abnormality of the locomotor system - primary was described by Prof. Hans Mau (1960 – 1980 - Germany, Tübingen) as “Seven Contractures Syndrome”- SofC (German “Siebenersyndrom”). In 2006 we added an eight deformity to this Syndrome – varus of shanks. Since then we have used the description “Syndrome of Contractures and Deformities” (SofCD). Explanation of causes and symptoms in SofCD – are following - the deformities are - because of an insufficient space in the uterus for the fetus – in result some minor disorders or wrong positions - and anatomy changes, as well movement asymmetries in feet, shanks, knees, hips, spine develop. The results of these issues during pregnancy can be observed as early as in newborns and babies.

Why do MBD appear? Explanation – some disorders in feet, knees, pelvis, hips, spine are caused by “asphyxia” (insufficient oxygen levels) during the pregnancy or delivery, or in infants - because of some brain illnesses.

Here I explain – severe “asphyxia” can lead to Cerebral Palsy (CP), but these cases are not present in this paper. In the article we present the clinical symptoms of disorder in particularly segments of locomotor systems and inform about the proper stretching exercises – which are typical for some kinds of sports.

Keywords

Deformities in locomotors system; Symptoms; Therapy; Sport in medicine.

Introduction

According to the authors' experience [1-3] deformities of the movement apparatus are caused by asymmetrical shortenings of soft tissues – muscles, tendons, fascias, capsules. Various deformities develop due to the asymmetrical movements, asymmetrical function and - shortenings - in orthopedic language, called “contractures”. As example of such pathology, we present disorders of feet, knees, pelvis and spine. The primary etiological factors all these disorders are connected with the Syndrome of Contracture and Deformities (Figure 1,2) and - because of shortening of soft tissues – as well - in Minimal Brain Dysfunctions (Figure 3, 4) and not, as widely believed, with “weak muscles” [5-40,46].

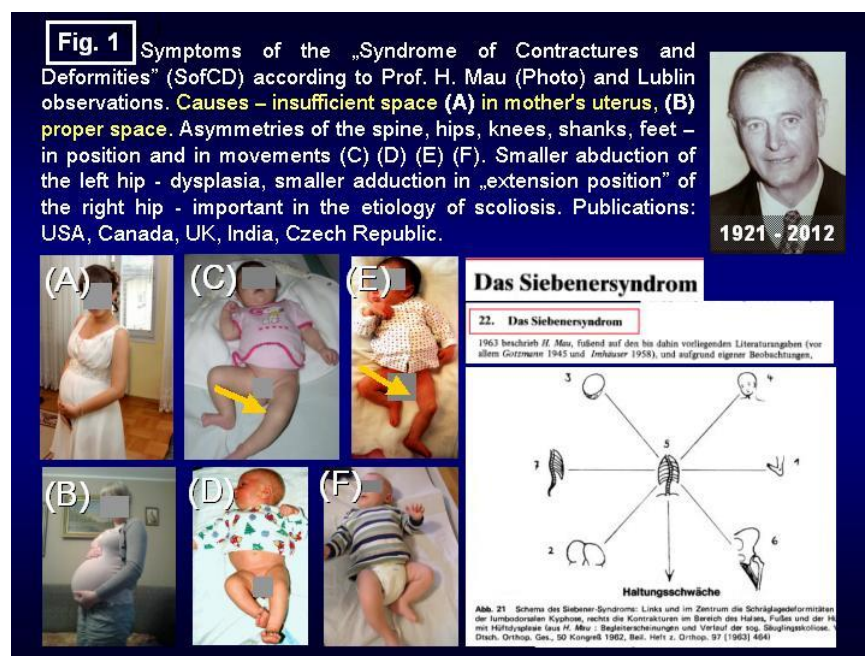


Figure 1: Symptoms of the „Syndrome of Contractures and Deformities” (SofCD) according to Prof. H. Mau (Photo) and Lublin observations. Causes – insufficient space (A) in mother's uterus, (B) proper space. Asymmetries of the spine, hips, knees, shanks, feet – in position and in movements (C) (D) (E) (F). Smaller abduction of the left hip - dysplasia, smaller adduction in „extension position” of the right hip - important in the etiology of scoliosis. Publications: USA, Canada, UK, India, Czech Republic.

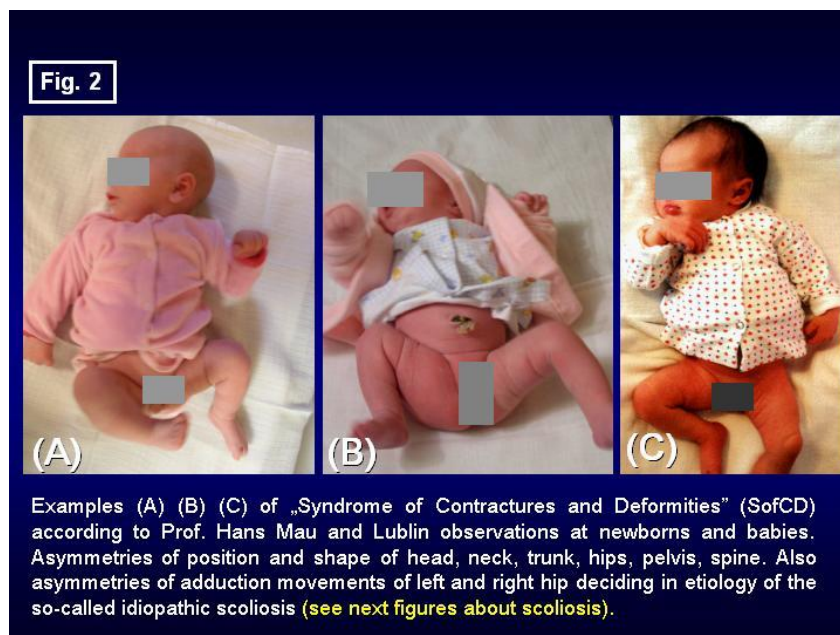


Figure 2: Examples (A) (B) (C) of „Syndrome of Contractures and Deformities” (SofCD) according to Prof. Hans Mau and Lublin observations in newborns and babies. Asymmetries of position and shape of head, neck, trunk, hips, pelvis, spine. Also asymmetries of adduction movements of left and right hip deciding in etiology of the so-called idiopathic scoliosis (see next figures about scoliosis).



Figure 3: Symptoms of Minimal Brain Dysfunction (MBD). (A) Extension contracture of trunk / of Spine. (B) Anterior tilt of pelvis. (C) Laxity of joints – one of the symptoms according to Wynne – Davies. In MBD all these deformities are caused by sub- spasticity of muscles. The are indirect causes & influences (A) (B) (C) in development of the scoliosis.

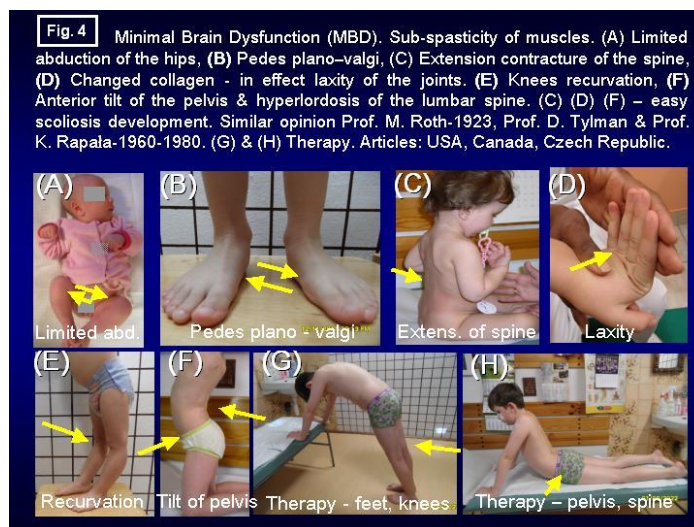


Figure 4: Minimal Brain Dysfunction (MBD). Sub-spasticity of muscles. (A) Limited abduction of the hips, (B) Pedes plano-valgi, (C) Extension contracture of the spine, (D) Changed collagen - in effect laxity of the joints. (E) Knees recurvation, (F) Anterior tilt of the pelvis & hyperlordosis of the lumbar spine. (C) (D) (F) – easy scoliosis development. Similar opinion Prof. M. Roth-1923, Prof. D. Tylman & Prof. K. Rapala-1960-1980. (G) & (H) Therapy. Articles: USA, Canada, Czech Republic.

The etiology of the So-Called Idiopathic Scoliosis was described [1]. The causes include limited movements of the right hip, especially adduction (examination in the straight position of the joint [!]), internal rotation and extension. These asymmetries are symptoms of the “Syndrome of Contractures and Deformities” [SofCD].

Clinical Part

Feet: We can often observe the valgus or plano – valgus deformity of feet. The causes of these deformities is Minimal Brain Dysfunction. Sub-spasticity of muscles and laxity of joints can be often distinguished in MBD. “Laxity” occurs because of changes in collagen properties, but not because of “weak muscles”. In MBD we observe the shortening of Achilles tendon and m. triceps surae. The deformity of feet is the final result [1-46].

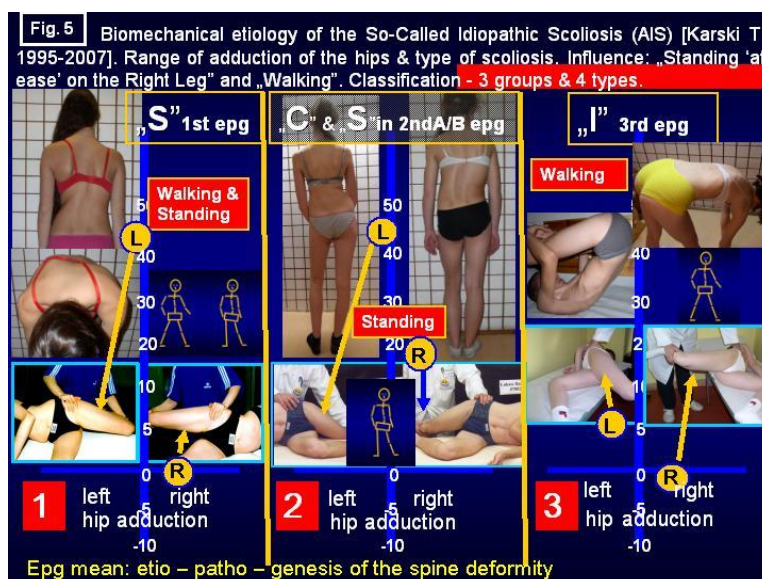


Figure 5: Biomechanical etiology of the So-Called Idiopathic Scoliosis (AIS) [Karski T. 1995-2007]. Range of adduction of the hips & type of scoliosis. Influence: „Standing 'at ease' on the Right Leg" and „Walking". Classification - 3 groups & 4 types.



Figure 6: Example of wrong and harmful therapy in scoliosis (A) (B) (C). After such incorrect exercises plus corset in (D) - yatrogenic deformity, big curves, stiff spine, big rib hump, impossible to compete in sport, pain.

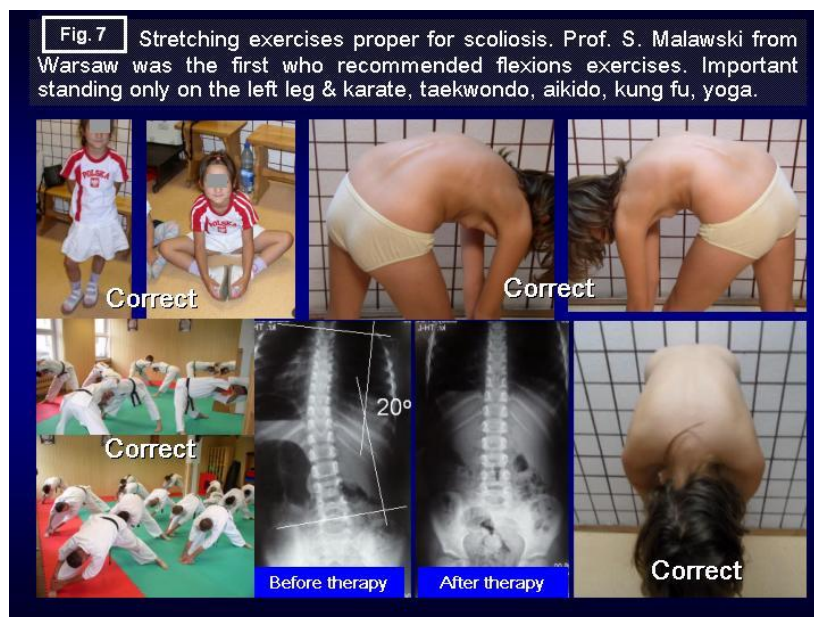


Figure 7: Stretching exercises proper for scoliosis. Prof. S. Malawski from Warsaw was the first who recommended flexions exercises. Important standing only on the left leg & karate, taekwondo, aikido, kung fu, yoga.

Therapy: only proper methods of treatment are stretching exercises for lengthening of M. Triceps Surae and Achilles tendon on both legs. Such methods are the same – like stretching exercises - in karate, taekwondo, aikido, kung fu or yoga (Figure 8-10).



Figure 8: The treatment by karate, taekwondo, aikido, kung fu, yoga - in program of therapy and prophylaxis of scoliosis, as well incorrect posture of pelvis and shoulders, flexion contracture of knees, equines position of feet is maximally beneficial. Such therapy should begin at the age of 4 or 5. Such exercises should be performed in Primary Schools.



Figure 9: Stretching exercises – are proper therapy for locomotors system disorders – especially for scoliosis. The best karate, aikido, taekwondo, kung fu, yoga. Aim of scoliosis therapy – is to obtain symmetry of movement of hips, position of pelvis and full movement of the spine in all directions. In result - proper growth & proper development of the spine and the whole body.

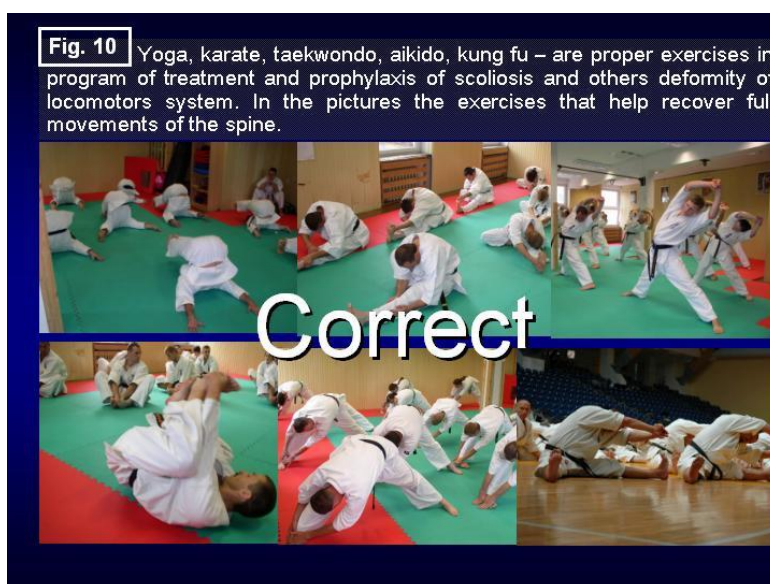


Figure 10: Yoga, karate, taekwondo, aikido, kung fu – are proper exercises in program of treatment and prophylaxis of scoliosis and others deformity of locomotors system. In the pictures the exercises that help recover full movements of the spine.

Knees: Because of the shortenings (in medical language – “contractures”) of flexors of knee in MBD – extension of knees can be limited or “recurvation of knees” appears [!]. Why recurvation? It is compensatory deformity. Explanation: during walking, in the “standing phase”, when the child puts their

whole foot on the ground (and not the toes only), “recurvation of knees” appears in order to compensate for the “full feet contact” with the floor.

Therapy: Only proper methods of treatment are stretching exercises to lengthen all M. Flexors of Knees (M. Biceps Femoris, M. Semitendinosus, M. Semimembranosus, M. Gracilis) and m. Triceps Surae and Achilles tendon on both sides. Such methods of therapy are typical for karate, taekwondo, aikido, kung fu and yoga (Figure 8-10).

Anterior tilt of pelvis and hiperlordosis of lumbar spine: Very often in MBD exist shortening of M. Rectus both sides. M. Rectus – is a part of M. Quadriceps – and it acts as an extensor for the knees but a flexor for the hips. In result appears wrong position of pelvis with its “anterior tilt” and as next result - “hiperlordosis of lumbar spine”. This deformity must be cured in the childhood of life. If not cured, “back pain syndrome” develops in adults.

Therapy for children and adolescents: The only proper methods of therapy are stretching exercises to lengthen of M. Flexors of hips. Such methods of therapy are similar like in karate, taekwondo, aikido, kung fu or yoga (Figure 8-10).

Spain-So-Called Idiopathic Scoliosis

Some historical information

In observations of [1,2] was given completed information about “biomechanical etiology of the Idiopathic Scoliosis” and from this time we speak “So-Called Idiopathic Scoliosis”. During examination of children with scoliosis we discovered that every child with this spine deformity has a limited adduction of the right hip in the straight position (Figure 5) and additionally, some children have a limited internal rotation and extension of the same joint. This asymmetry of movement leads to an asymmetry of function – “walking” and “standing”. In 1997 Was found that all scoliosis children have the habit of standing ‘at ease’ only or mostly on the right leg. Explanation due to smaller adduction, the right hip is more stable for standing – but after years leads to spine curve.

In 2001 and 2004 were presented a new classification of scoliosis – three groups and four types of the spine deformity. In 2006 “the model of hip movements” was precisely described and in result - three groups and four types of scoliosis were distinguished. In 2007 the additional influences in the development of scoliosis, connected with Minimal Brain Dysfunctions [MBD] were described. There are:

- extension contracture of the spine (trunk) even in babies and small children.
- anterior tilt of the pelvis.
- general laxity of the joints.

In the same year the reason why blind children never have scoliosis was found as well. Explanation: other form of walking – no lifting of legs - no additional movements of pelvis and spine – no rotation deformity and no stiffness of spine.

Therapy of scoliosis – former – incorrect - and new – proper. Because the etiology of scoliosis has been a secret for over two thousand years, all scientists present the opinion, that the scoliosis is caused by “weak muscles” giving insufficient stabilization of the growing spine. In therapy they recommended only strengthening exercises for muscles (Figure 6), next corset and on end of the therapy - surgery. Such therapy has never given good results and now should belong to the past.

The proper therapy are only flexion and flexion–rotation stretching exercises - like karate, taekwondo, aikido, kung fu, yoga (Figure 7-10). Why? Because in these all kinds of sports – there are stretching elements leading to full and symmetrical movement of joints, to proper position of parts of body. “Set up” or “make up” exercises for karate, aikido, taekwondo, kung fu, tai chi – contain the “stretching elements” – and they are the best therapy for all orthopedic disorders but especially for scoliosis. We would like to emphasize and confirm that yoga in the treatment and in the prophylaxis is very profitable.

Discussion

The authors have been treating children with scoliosis with stretching exercises since 1984. Many other deformations in children can be treated with stretching exercises too.

Examples for such a therapy are following:

1. torticollis (wry neck) – stretching rotation exercise / position of child’s head to the “torticollis side”.
2. equines deformity of feet.
3. anterior tilt of pelvis with hiperlordosis of lumbar spine.
4. valgus deformity of knees – and of course.
5. So-Called Idiopathic Scoliosis - and many others.

What is characteristic of yoga, is that - the exercises are done very gently, they are repeated many times, the “corrected position” is held for a long time. This is a great time for “meditation”, and in Christian Countries like Poland and Uganda it is the excellent time to think about God, about Jesus Christ and Saint Mary, as well about “good health thanks to proper exercises”.

Conclusion

The deformations and wrong position of the body of children, as well as pain syndromes of the adults are caused by asymmetrical shortening of soft tissues - tendons, muscles, fascias, capsules, called in orthopedics “contractures” or because of instability of joints, but not or extremely rare because of “weak muscles”.

Our observations in years 1961 – 2023 confirms, that the “weak muscles” are not the cause of the So-Called Idiopathic Scoliosis – but Syndrome of Contractures and Deformities – with their influence for asymmetrical functioning – during walking and standing – more on the right leg. The same cause – asymmetrical function - is in other deformations at children and youth and pain syndromes in adults.

The only proper therapy is stretching exercises, helpful in obtaining full movements of feet, knees, hips, spine in all directions and such therapy can be carried out through sports, such as karate, taekwondo, aikido, kung fu, yoga.

Acknowledgement

Many thanks for MA Honorata Menet from Caen University, France for proper Edition of English text.

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