

So-Called Idiopathic Scoliosis - Biomechanical Etiology. Lublin Classification 2001 - 2004. New Therapy. Rules of Causal Prophylaxis

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ABSTRACT

The etiology of the So-Called Idiopathic Scoliosis (old description: adolescent idiopathic scoliosis [AIS]) was a secret over for more than two thousand years. In year's 1984/1995 – 2007/2026 was described the biomechanical causes of the scoliosis (Tomasz Karski). The causes are connected with permanent standing 'at ease' on the right leg and with walking. Both these factors are in connection with limited movement of the right hip in some groups of children. This symptom – asymmetry of hip movements - is one of the signs of Syndrome of Contracture and Deformities (SofCD) according to Prof. Hans Mau and Lublin observations. In children with scoliosis we observe limited movement of the right hip – precisely – limited adduction in straight position of the joint.

The asymmetry of hip movements makes the influence of two “biomechanical parameters - of “standing” and of “walking”. In / at scoliosis children “the Standing ‘at ease’ is more or only on the right leg. Such standing start to be from the second year of child's life. In some specifically model of hip movements - also “walking” causes additional influences to the pelvis and spine – causes curves and rotation distortion and deformation of the spine and its stiffness. In this article we give the rules of proper therapy and causal prophylaxis of this spine deformity.

Keywords

So-Called Idiopathic Scoliosis, Biomechanical etiology, New classification, Therapy, Causal prophylaxis.

Introduction

The etiology of idiopathic scoliosis was nor found and nor described for many centuries. Were given many presumably / hipotetic causes – but nor one was proper. The biomechanical etiology of scoliosis has been found and described in the years 1995 - 2007 [1]. First observation was in 1984 during my (T. Karski) one-month education stay in the Invalid Foundation Hospital in Helsinki, Finland - next observations were in Children Orthopedics and Rehabilitation Department of the Medical University in Lublin, Poland. After 10 years of observations an article was published about etiology of scoliosis – see literature (point 6). The first clinical symptoms of scoliosis are in the region of the pelvis and hips, next – because of changed function – “standing ‘at ease’ on the right leg” and

“walking” - in the spine. These all-primary changes are symptoms of Syndrome of Contracture and Deformities described by Prof. Hans Mau from Tübingen, Germany (Figure 1).

History: Observations from the 1984 till 2026

A/ In years 1984 - 1995 – during examination of many scoliosis patients in Lublin were found the asymmetry of hip movements. The adduction in the straight position of a joint in all patients with scoliosis is limited. The asymmetry of movement of the hips – as mentioned in the Introduction - are the symptoms of Syndrome of Contractures and Deformities (SofCD) according of Prof. Hans Mau, Germany – described in German as “*Siebersyndrom*”. (Figure 1).

B/ In 1995 the first lecture was given about biomechanical etiology of So-Called Idiopathic scoliosis during the Orthopedic Congress in Szeged in Hungary.

C/ In 1996 the first article was published about biomechanical etiology of scoliosis in journal "Orthopädische Praxis" in Germany: T. Karski [1996] *Kontraktionen und Wachstumstörungen im Hüft- und Beckenbereich in der Ätiologie der sogenannten "idiopathischen Skoliosen" – biomechanische Überlegungen, Orthopädische Praxis 32, 3 (1996) 155-160*

D/ In 2006 – definitively was described (3) three types of hip movements and (4) four types of scoliosis deformity.

E/ In 2007 – we could give the answer why blind children do not have scoliosis. Explanation: because on other manner of gait – no lifting of the legs, no compensatory movement of the pelvis and no pathological influence to the spine. Also standing is carefully on



Figure 1: Symptoms of the "Syndrome of Contractures and Deformities" (SoCD) according to Prof. H. Mau (Photo) and Lublin observations. Causes – insufficient space (A) in mother's uterus (in womb), (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 – lead to dysplasia, smaller adduction in „extension position of the right hip - important in the etiology of the So-Called Idiopathic Scoliosis. Limited adduction of the right hip in extension position – easy standing (!) but is permanent and make scoliosis.

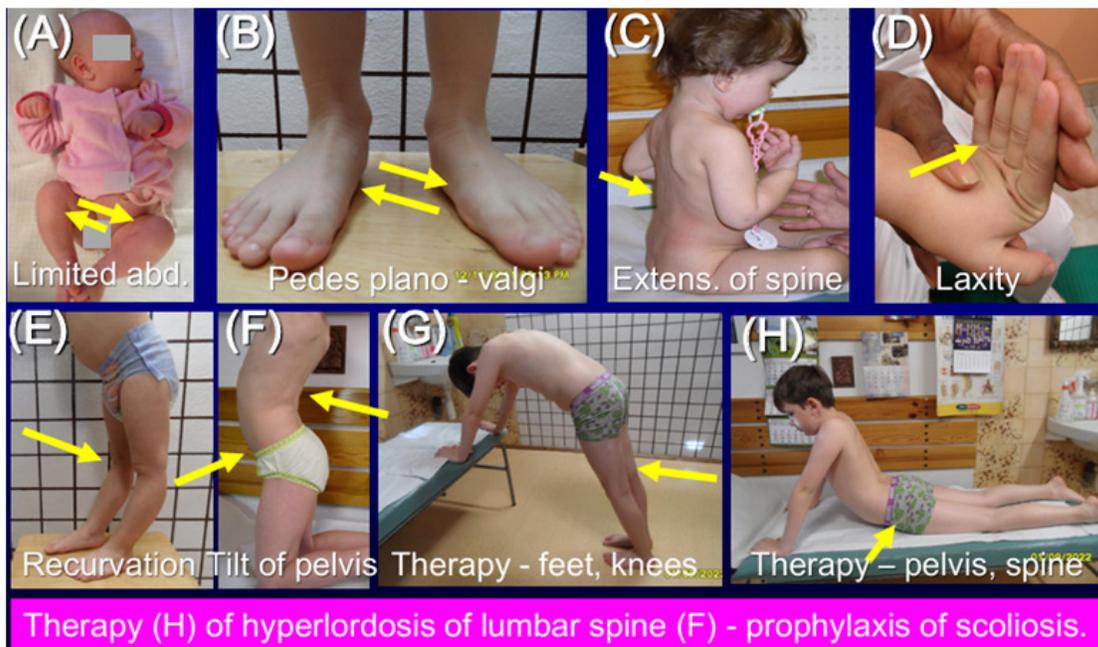


Figure 2: Minimal Brain Dysfunction (MBD). Sub-spasticity of the muscles. (A) Limited abduction of the hips, (B) Pedes plano-valgi, (C) Extension contracture of the spine, (D) Changed collagen – a result laxity of joints. (E) Knees recurvation, (F) Anterior tilt of the pelvis & hyperlordosis of the lumbar spine. (C) (D) (F) Additional causes of development of scoliosis. Similar opinion Prof. M. Roth-1923, Prof. D. Tylman & Prof. K. Rapała-1960-1970. Therapy (G) & (H). Therapy of hyperlordosis of lumbar spine (H) – as prophylaxis of scoliosis.

both legs, not on the right leg - confirmation by ophthalmologists.

F/ In this year – 2007 - we could explain the additional influences in development of spine deformity - coming from the Central Nerve System (Figure 2). Namely – in Minimal Brain Dysfunction (MBD) – and causes of MBD - is asphyxia during gravidity or delivery we observe:

1. “extension position of the trunk” – gave easy development of scoliosis in two groups and two types,
2. anterior tilt of the pelvis – gave easy development of scoliosis through worse stability between pelvis and sacral bone,
3. laxity of joints - make easier development of scoliosis.

G/ In 2001 and in 2004 (3) three group and (4) four types of So-Called Idiopathic Scoliosis were described in new Lublin classification and this new knowledge was confirmed in materials of scoliosis of children till 2026. (Figure 3).

Material

In the years 1985 – 2026 we observed and treated over 3000 patients mostly at age 5 – 18. There are coming to us for consultation - children with scoliosis mostly previously treated fully incorrectly. According to us they had yatrogenic deformity (Figure 4). There was also a small group of older patients (ages 60 – 80 years) with the problem of “back pain”. These older people very often were primary treated in other Orthopedic Centers – and to the patients was spoken not about primary deformity of the spine – scoliosis or hyperlordosis of lumbar spine, or stiffness - but about “prolapsed of the nucleus pulposus” as cause of the pain. In our examinations

the causes of back pain were mostly “degenerative scoliosis” and “hyperlordosis of the lumbar spine” - cases of MBD, other description – patients with ADHD. All these older suffering patients - had the habit to stand ‘at ease’ on the right leg – which is the main cause of scoliosis in two groups and types – see classification.

New classification of the So-Called Idiopathic Scoliosis (Figure 3)

(1) Scoliosis “S” 1st etiopathological group (epg) - double curve. 3D. The spine is stiff. Rib hump on the right side of the thorax. Connection with gait and standing „at ease’ on the right leg. First symptoms – disappearing of processi spinosi in thoracic part of spine (Th6 – Th12) very early – at the age of 5 - 7. In Adams test and Lublin side bending test - we observe stiffness, next curves. Progression especially in rapid growth time.

(2a) Scoliosis “C” 2nd/A epg – one curve – lumbar left convex. 1D or 2D. Spine flexible. Connection with standing „at ease’ on the right leg only. In the first 2 – 5 years of life such standing by children make the “functional deformity” – which is reversible, but at age of 8 – 12 the deformity is fixed in the form of one curve scoliosis. Mild progression.

(2b) Scoliosis “S” 2nd/B epg – two curves, 2D or 3D. Connection with standing ‘at ease’ on the right leg and additionally with laxity of joints (MBD / ADHD) and /or harmful previous therapy. The spine is flexible. Mild progression.

(3) Scoliosis “I” 3rd epg. Deformity has the form of a stiff spine. 2D or 3D. No curves or small ones. The cause is gait only. Such “spine deformity” was till 2004 never classified as “scoliosis”. We introduced this form of spine deformity after discussion with Prof.

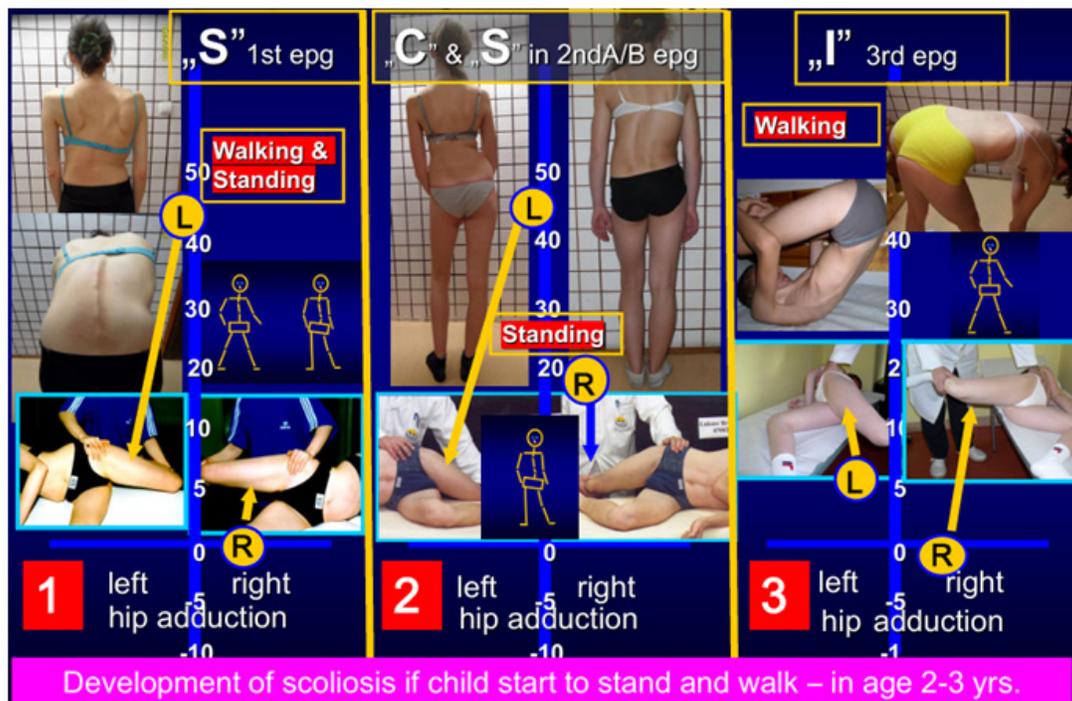


Figure 3: Biomechanical etiology of the So-Called Idiopathic Scoliosis (AIS) [1]. Range of adduction of the hips & type of scoliosis. Influence: “Standing ‘at ease’ on the Right Leg” and “Walking”. Classification - 3 groups & 4 types. Development of scoliosis if child start to stand and walk – at age 2-3 years.

Keith Luk and Prof. Kenneth Cheung in Hong Kong in 2004 - it was during - T. Karski and J. Karski - educative stay in Orthopedic Department in Hong Kong. In our material such deformity – scoliosis in form of stiffness of the spine - we see ca. 10 % of all patients with spine problems.

Old, harmful therapy. Examples on photos (Figure 4)

Old knowledge about scoliosis - was based on such statement: “scoliosis” is in results of “weak muscles” – well - what kind of therapy should be recommended? – “patients must make exercises to receive strong muscles”. But – such therapy - was a big mistake. Here we present the list of improper methods of therapy of scoliosis in Poland and in other countries of the world:

1. all extension exercises - incorrect, all so-called “anti-gravitation exercise” - incorrect,
2. all exercises if the child was in prone position (on stomach) –incorrect,
3. all exercises to make “strong a muscle of the trunk” – fully incorrect,
4. also using of corset - instead of proper therapy – had given no proper results, even make in many cases bigger ribs deformity,
5. surgery – in our opinion – it is not proper therapy. In result of

surgery the spine is stiff and causes permanent pain over all years of life.

Proper exercises in scoliosis therapy and in causal prophylaxis (Figure 5)

1. Standing ‘at ease’ on left leg.
2. Sitting in a relaxed position – spine in flexion.
3. Sleeping in embryo position – spine in flexion.
4. Active participation in sport, in school’s gymnastic, in sport clubs – to receive full movement of spine in all directions.
5. Stretching exercises to elongate the soft tissue on the concave side of the curve and exercises to receive proper position of the pelvis and symmetry of movements of both hips.
6. Especially important flexion exercises for the spine – aim - against stiffness. The prophylactic exercises should be introduced to children aged of 5 – 6. Here my obligation is to inform – such – flexion exercises in therapy of scoliosis was introduced Prof. Stefan Malawski from Warsaw, Poland in 1950 – 1960.
7. Especially important are flexion exercises for the spine in all directions - flexion to the front, to the left, to the right side – but in first place to “convex” side of scoliosis - to elongate the “contracted” (shortened) soft tissues on the concave side of the curve.

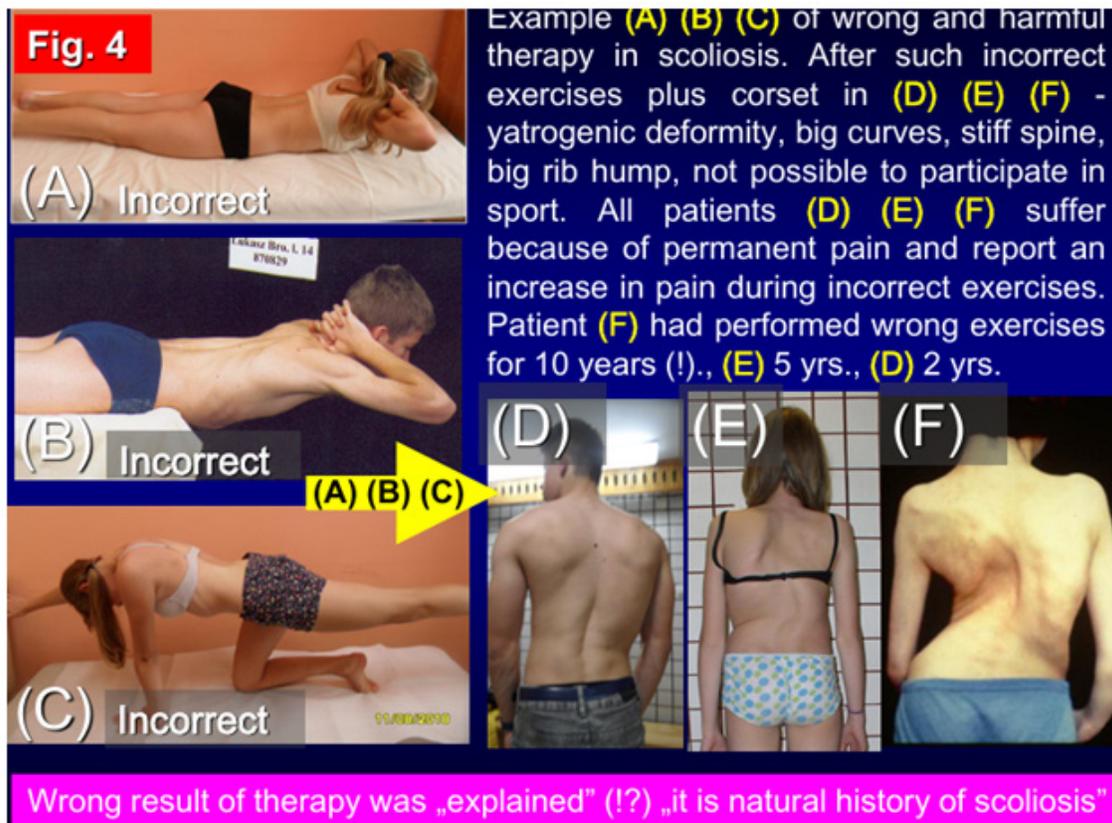


Figure 4: Example (A) (B) (C) of wrong and harmful therapy in scoliosis. After such incorrect exercises plus corset in (D) (E) (F) - yatrogenic deformity, big curves, stiff spine, big rib hump, not possible to participate in sport. All patients (D) (E) (F) suffer because of permanent pain and report an increase in pain during incorrect exercises. Patient (F) had performed wrong exercises for 10 years (!), (E) 5 years, (D) 2 years. Wrong result of therapy was explained by many doctors on the world: (!?) “it is natural history of scoliosis”. No – it was incorrect, wrong therapy (!).

8. Very important are all kinds of sport, but especially proper are such arts of sport - like karate, taekwondo, aikido, kung fu, yoga – they contain stretching elements (!) and enable proper symmetrical growth of the spine and development of the child's body.

Discussion and comments to the new knowledge about scoliosis

We hope that every scientist in USA and in other countries will check the biomechanical causes of spine deformity - standing 'at ease' on the right leg. The new therapy - will be introduced – and the stretching exercises are - as only one proper method of therapy. We hope that causal prophylaxis will be introduced for every patient in USA and next in all other countries. Here we repeat – important is standing the same time on the right, left, both legs as prophylaxis – and in cases of beginning of scoliosis – standing 'at ease' only on the left leg [1-43].

Conclusions

1. Development of the So-Called Idiopathic Scoliosis is connected with biomechanical influences – walking and standing 'at ease' on the right leg. These causes are the result of limited adduction movement – and in some cases also limited internal rotation movement of the right hip.
2. The restricted range of movements in the right hip is the main factor from the age of 2 – 3 years – so early - in oncoming scoliosis. The asymmetry of hip movements is one of the symptoms of the “Syndrome of Contractures and Deformities” according to Prof. Hans Mau and Lublin observations.

3. In the new Lublin classification, they are three groups and four types of So-Called Idiopathic Scoliosis connected with specific “model of hips movements” and next with - function - “standing” in two groups / types and with “walking” – also in two groups / types of scoliosis.
4. The proper therapy of scoliosis – are only stretching exercises to receive full movement of the right hip, proper position of the pelvis and full movement of the spine in all directions.
5. Very important is – in causal prophylaxis and in therapy – standing 'at ease' on the left leg and a stretching form of sport – like karate, taekwondo, aikido, kung fu, tai chi, yoga – leading to full movement of hips and spine, to proper position of pelvis – as condition of proper, symmetrical growth of body and spine.

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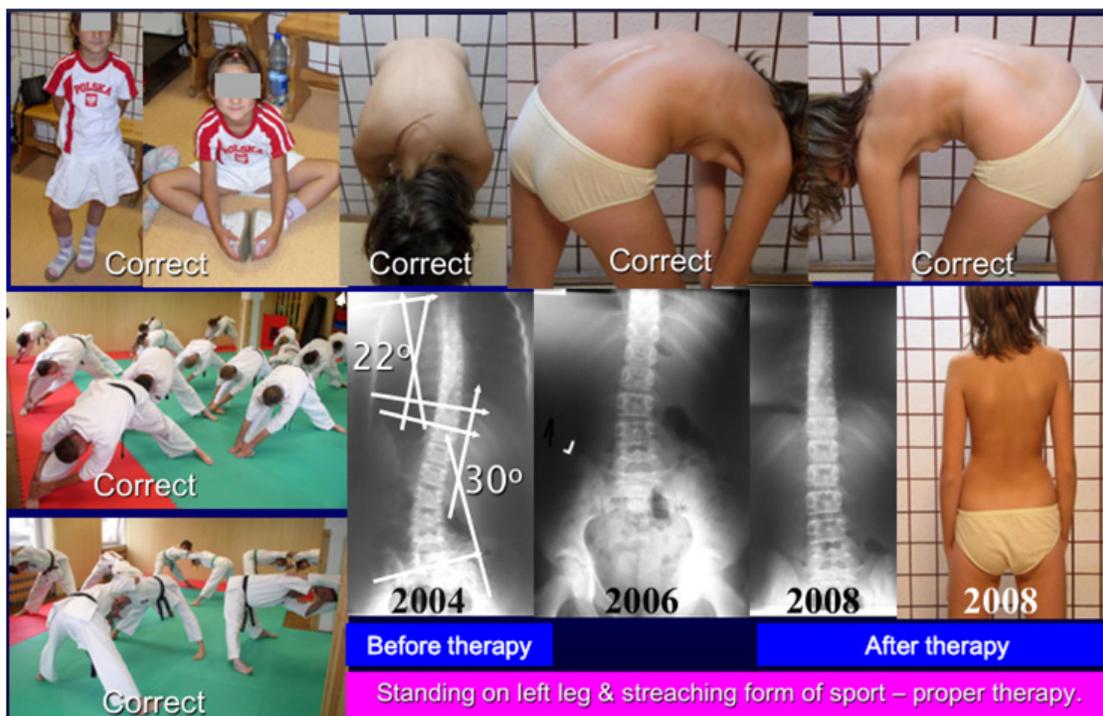


Figure 5: Therapy of scoliosis by stretching exercises. Prof. Stefan Malawski – Warsaw (1960 – 1970) – was the first to recommended flexion exercises. Important standing only on the left leg & a sport like karate, taekwondo, aikido, kung fu, joga. Standing on left leg & stretching from of sport – it is proper therapy and are given good results.

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