

## Observations (1995 - 2018) about Improper Forms of Standing and Sitting in Children and Adolescents - Causes of Pathology of Movement Apparatus

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### Abstract

In general medicine literature and also in orthopedics literature we cannot find the information about forms of “standing” and “sitting” in children, adolescent and adults in context of pathology of movement system. The authors (T. Karski) in own observations in years 1984/1995 - 2018 found that in etiology of the so-called idiopathic scoliosis the “standing ‘at ease’ on the right leg” is the cause of scoliosis in three types in Lublin (new) classification.

From the 2012 we observe also that the incorrect position of sitting leading to pathology of knee - instability and pain syndromes. In article we present pathogenesis of deformities and the rules of the therapy and prophylaxis.

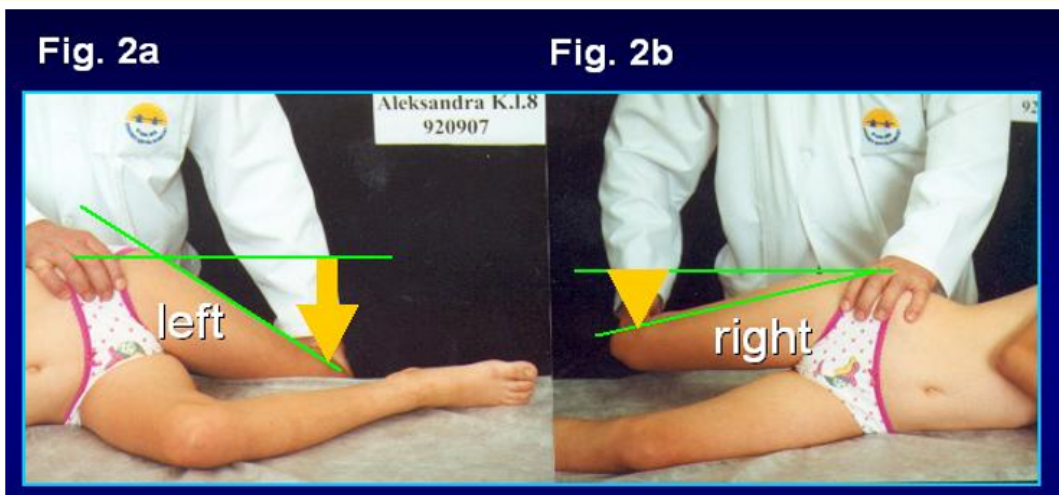
**Keywords:** *Inconvenient Standing; Inconvenient Sitting; Pathology of Movement Apparatus*

### Introduction

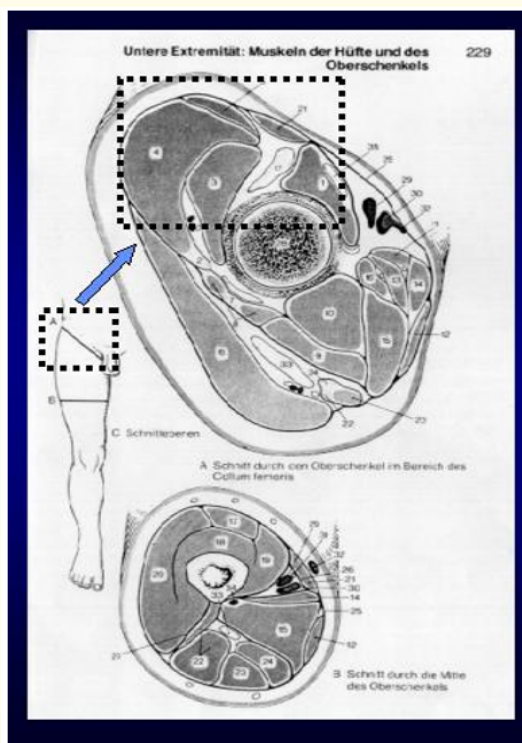
Hip and knee joint, foot and ankle joint as well spine are common locations of dysfunctions due to congenital, posttraumatic, inflammations-, or chronic overload reasons. Very frequent the pathology in locomotors system is connected with “Syndrome of Contractures and Deformities” described primary by Prof. Hans Mau from Tübingen, Germany (Figure 1a, 1b, 2a, 2b, 3). The overload is known in medicine and is the cause of pathology in locomotors system but was not “connected” with the scoliosis - here the role play time - (Figure 4) and was not noticed in pathology of the knee - here the role play incorrect position by sitting.



**Figure 1a and 1b:** “Syndrome of Contractures and Deformities” (SofCD) according to H. Mau in newborns and babies. Asymmetries of position and shape of head, neck, trunk, hips, pelvis, spine. Also asymmetries of movements of left and right hip, deciding in “walking children” in etiology of the so-called idiopathic scoliosis thought function - gait and standing.



**Figure 2a and 2b:** Test of adduction of hips. Examination in "extension/straight position of joints". Typical range of movements for Ind etiopathogenical (epg) type of scoliosis. Smaller adduction of the right hip enables the permanent standing 'at ease' on the right leg.



**Figure 3:** Picture taken from German Anatomy Book. Shortened soft tissues of the right hip are the cause of Abduction Contracture of the Right Hip or Restriction of Adduction of this joint.

The shorted soft tissues are: 1. Tractus iliotibialis, 2. Fascia lata, 3. M. tensor fasciae latae, 4. Fascia of m. gluteus medius, 5. Fascia of m. gluteus minimus, 6. M. rectus femoris, 7. M. iliopsoas, 8. Capsule of the right hip joint.

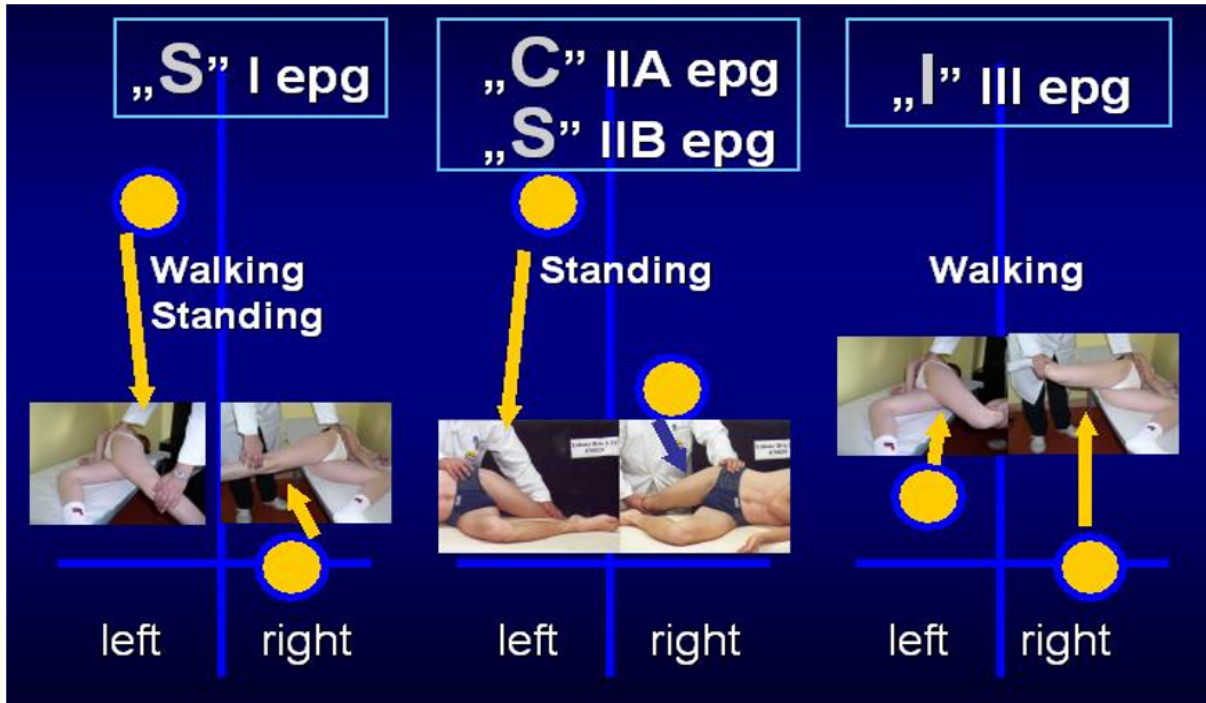


Figure 4: Model of hips movement - range of adduction and type of scoliosis. Influencing factor - walking and standing.

Overloading in our explanation mean: 1. Permanent one position of whole leg, or only knee, hip, spine. 2. Overloading can be connected with the habit of “standing ‘at ease’ on the right leg. 3. Overloading can be connected with the special incorrect position during sitting, making an influence to/on the anatomical and functional properties/situation of the knee and hip.

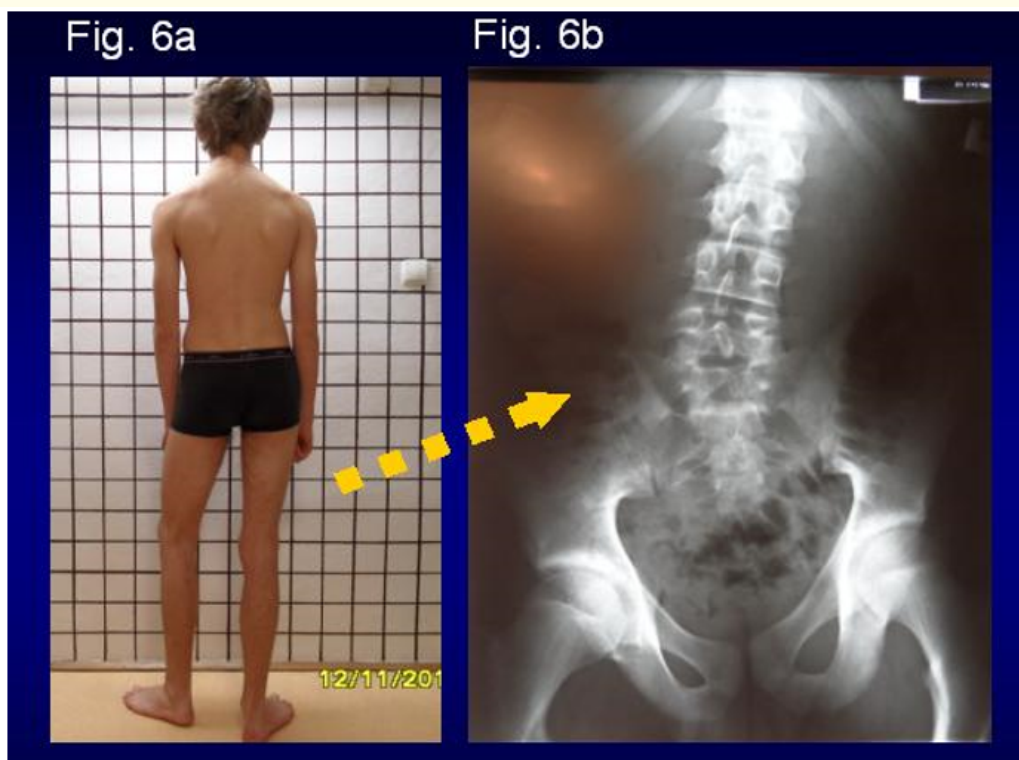
### Case Report

In our observations there are cases (material N - 1250 - in “standing” group and N - 98 in “sitting” group). The standing ‘at ease’ on the right leg is the cause of the so-called idiopathic scoliosis in I etiopathogenic group (epg) together with gait and exclusive, only standing in II/A and II/B epg - what was published in many articles - printed in last year’s mostly in USA (see literature and Website).

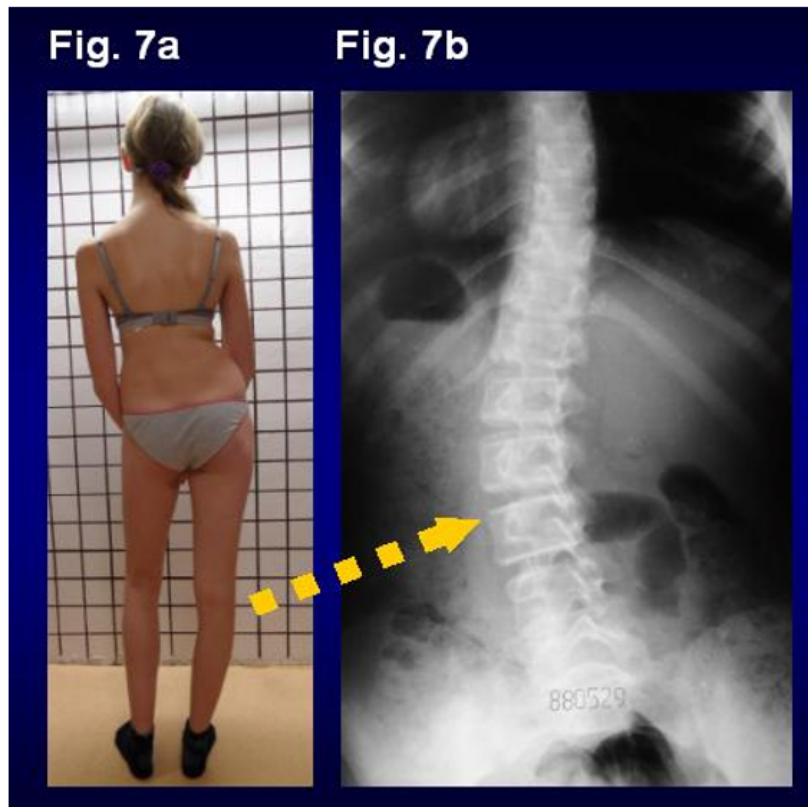
Clinical report about the habit of standing on the right leg. The examined patients were observed from the 1984 (T. Karski) till 2018 (T. Karski, J. Karski and J. Pyrc). In this material we could noticed and over years confirmed that: 1. the standing ‘at ease’ on the right leg is permanent and here play role “the cumulative time of standing”, 2. this permanent standing from the 2<sup>nd</sup> year of life can influence the development, growths and axis of the knee, hip and is the cause of the so-called idiopathic scoliosis in two groups in Lublin classification. We present some examples of standing and in result scoliosis. The habit of standing is connected with the “Syndrome of Contracture and Deformities” (SofCD - H. Mau, T. Karski). The smaller adduction of the right hip makes easy standing on the right leg and because of this is permanent (Figure 4, 5a, 5b, 6a, 6b, 7a, 7b).



**Figure 5a and 5b:** *Martyna 11 years old. Born 2.02.1997 - Scoliosis "C" II/A epg. Adduction of right hip 20/5, of left 40/35. Standing on right leg leads first to "physiological deviation" but with time ultimately, to scoliosis.*



**Figure 6a and 6b:** *Boy 10 years old. Standing 'at ease' on the right leg is the cause of the so-called idiopathic scoliosis in "C" II/A epg.*

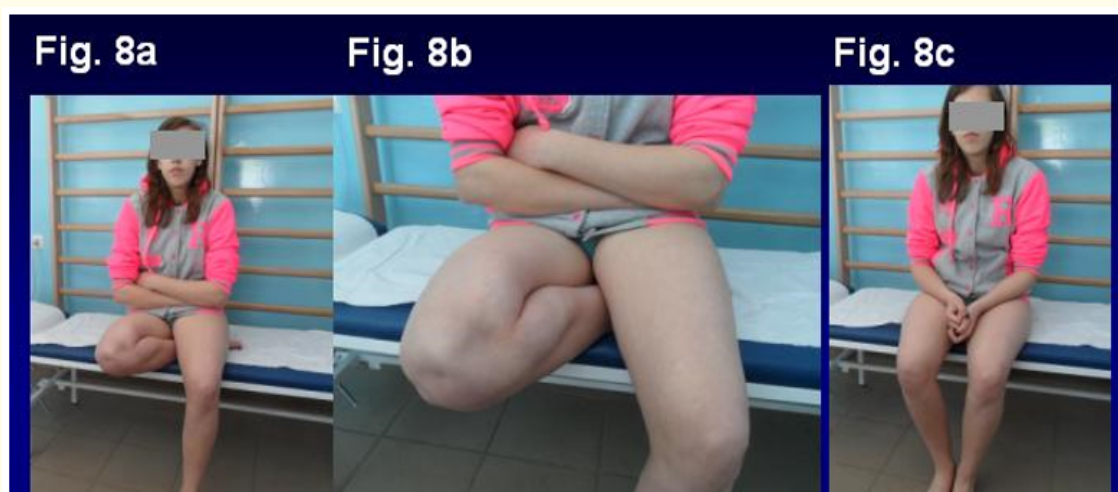


**Figure 7a and 7b:** Karolina 13 years old. Scoliosis "S" II/B epg. Spine flexible. Causative: "Standing on the right leg" plus laxity. Arrows shown "standing" and scoliosis.

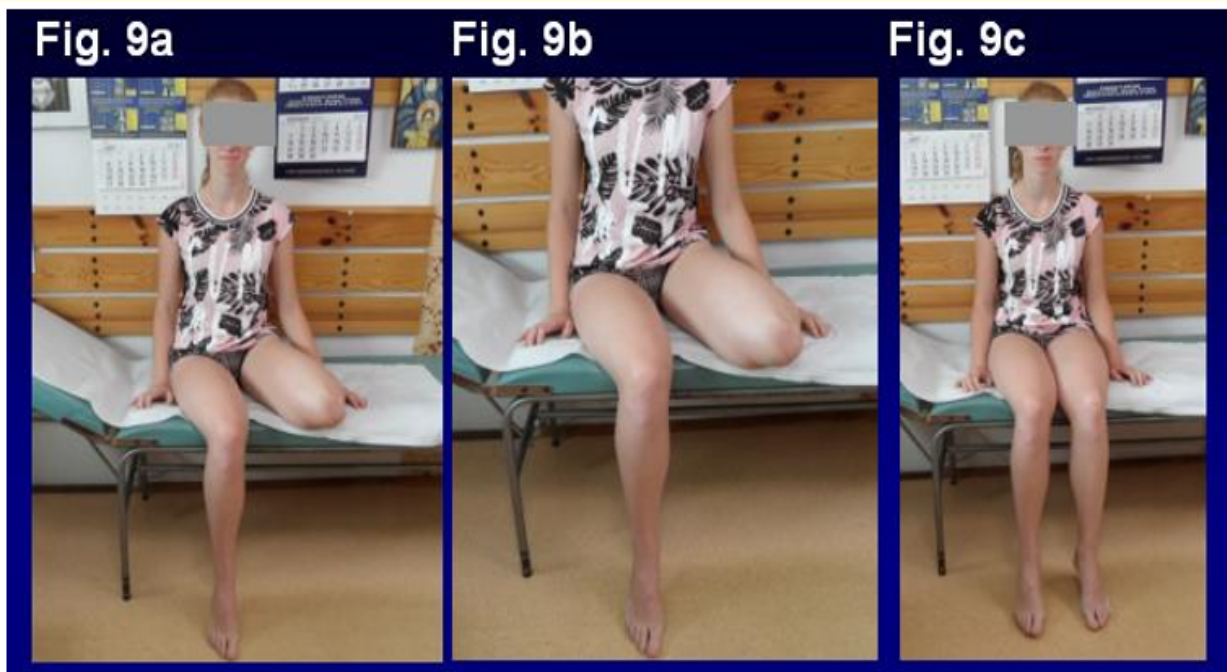
Clinical report about the habit of incorrect sitting and its influence of the knee and hip. Over many years we treated the children and adolescent with the pain syndromes of knee (see "Discussion"). But from the 2012 we found "the other" reasons of this pathology.

Namely we found - in precise examination - that in some patients "the line of movement" from flexion to extension of the knee is not normal, not straight, not in sagittal "line of movement", but is going with additional rotation movement or with "valgus" movement in the joint. Next we found the lateral instability of the knee or even anterior - posterior instability, because of loosening of the ligamentum cruciatum.

So - in precise anamnesis we reflect that "the improper sitting" is the cause of such pathology. We found that the children (sometimes also adult persons) have the habit to sit in incorrect position (Figure 8a, 8b, 9a, 9b, 10a, 10b).



**Figure 8a-8c:** Kamila Kolb. Age 17. No 990925. Valgus of knees. Pain in right knee. Pathological way of movement of right knee. She had the habit to sit in wrong position of the right leg. Shortening of both Achilles tendons. Laxity of joints. Clinically Minimal Brain Dysfunction (MBD).



**Figure 9a-9c:** Natalia B. Age 18. Born 3.11.1998. No 981103. Pain in left knee. Many doctors before examination in Lublin. Various diagnosis - but never proper. In examination incorrect way of movement of the left knee from flexion to extension. Now diagnosis: instability of left knee, in result pain. Instability because of faulty (incorrect) sitting (Figure 9a, 9b). Proper sitting figure 9c.



**Figure 10a-10c:** Bartosz A. Age 16. Born 28.05.1999. Pain in the left knee. Many doctors. Diagnosis: Osgood Schlatter Disease - no proper (!). Many injections into knee - no result. Examination in Lublin 15.01.2016. Diagnosis: 1. Instability of left knee. 2. Flexion contracture 5 degrees. 3. Slight varus of shanks and valgus of knees. 4. Cause of pain and instability - permanent faulty sitting position (Figure 10a, 10b). Proper sitting (Figure 10c).

Therapy of both groups of patients. The method of prophylaxis of the scoliosis is to stand the same time on right, left and on both legs. Important is sleeping in embryo position to prevent the stiffness of the spine. In therapy we recommend the standing 'at ease' only on the left leg. Every kind of sport and especially the stretching form of sport like karate, taekwondo, aikido and similar in prophylaxis of scoliosis are very beneficial.

In therapy of knee insufficiency it is important to cure of every varus deformity of shanks and valgus deformity of knees (see discussion) and to care for proper position of sitting. There are important to perform longer time the extension exercises for the knee - every day, many months or even years. These exercises - there are only exclusive extension exercises, and never from flexion to extension. Also physiotherapy - laser, iontophoresis, diadynamic electrotherapy, cryotherapy and afterwards water gymnastic in geothermal water is very beneficial.

## Discussion

The pathology of the spine connected with "standing 'at ease' on the right leg" is published (T. Karski) in the years 1996 to 2018 in many articles (see: [www.ortopedia.karski.lublin.pl](http://www.ortopedia.karski.lublin.pl)). First article was published in Orthopädische Praxis in Germany (1996). Next publications were printed mostly in USA (see Website). It was described not only the etiology of the so-called idiopathic scoliosis but was given the new classification, rules of causal prophylaxis and new treatment [1-6].

The second problem is connected with special form of sitting.

The most common factors of pathology in hip joint, feet joint and particularly knee joint are:

- a. Varus deformity of shanks resulting in the subsequent instability of the knee, often with influence the foot and hip.
- b. Valgus deformity of knee resulting in the subsequent instability of this joint and sometimes also influence the foot and hip.
- c. Flexion contracture of the knee (even small 3 or 5 degree), there is very common cause of the knee pain syndrome.
- d. Recurvatum (hyperextension) of the knees, as a compensatory deformity in Minimal Brain Dysfunctions (MBD).
- e. Patello - femoral joint problems, in form - lateral position of the patella (partially dislocation), syndrome of the higher-pressure of patella (lateral position of patella), chondromalacia of patella.

In the 2012 was described the pathology of the knee connected with the habit of pathological position of sitting.

About the problem of the knee connected with "sitting", the authors of this study did not find any publications.

## Conclusions

1. In the pediatrician activity - there are important: proper diagnosis through the precise anamnesis and proper examination. In the examination important is to estimate the form of the gait, standing and sitting habits of the child.
2. Standing 'at ease' on the right leg is permanent and leads to the so-called idiopathic scoliosis in two etiopathological groups. It is the new discovered etiological factor of the spine deformity (1995 - 2007 - T. Karski).
3. Permanent standing 'at ease' on the right leg makes also the bigger deformity of axis of the shank and knee. It is also the cause of pathology - arthrosis in the right hip.
4. Incorrect sitting leads to pathology of the knee joint and to instability and pain syndromes.
5. Every general doctors, pediatrics doctors and all other physician should remember about these causes of pathology - "standing 'at ease' on the right leg" and "incorrect sitting position" of children, adolescent and sometimes also adults patients - and recommended the prophylaxis.

## **Acknowledgement**

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