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New Tests for Early Screening of the So – Called Idiopathic Scoliosis

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Introduction-

a) New tests for scoliosis

In the diagnosis of so-called idiopathic scoliosis we should use widely known old tests such as Adams & Meyer test, symmetry or asymmetry of waist test, but also new tests like – the side bending test for scoliosis (Lublin test), a test checking the habit of standing ‘at ease’ – on the right versus on the left leg, Dunkan Elly – test to discover the flexion contracture of hips making “anterior tilt of pelvis”, pelvis rotation test (a new test since 2006), the adduction of hips test (similar to Ober test). This “adductions test” is deciding in new classification of scoliosis, explain character of scoliosis, place and character of curves, stiffness or flexibility of spine. All tests are presented below.

List of the old and new tests (Fig. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10) and clinical changes enabling an early discovery of scoliosis.

Keywords: so-called idiopathic scoliosis. examination's tests.

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Strictly as per the compliance and regulations of:



New Tests for Early Screening of the So – Called Idiopathic Scoliosis

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I. INTRODUCTION

a) *New tests for scoliosis*

In the diagnosis of so-called idiopathic scoliosis we should use widely known old tests such as Adams & Meyer test, symmetry or asymmetry of waist test, but also new tests like – the side bending test for scoliosis (Lublin test), a test checking the habit of standing 'at ease' – on the right versus on the left leg, Dunkan Elly – test to discover the flexion contracture of hips making "anterior tilt of pelvis", pelvis rotation test (a new test since 2006), the adduction of hips test (similar to Ober test). This "adductions test" is deciding in new classification of scoliosis, explain character of scoliosis, place and character of curves, stiffness or flexibility of spine. All tests are presented below.

List of the old and new tests (Fig. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10) and clinical changes enabling an early discovery of scoliosis. The list of the new tests and symptoms (doctor's/examination questions and answers) are important to recognize an early stage of scoliosis: Test of adduction of both hips (in extension position of joints – like the Ober test). Important is also checking the flexion contracture of the hips and the external rotation contracture of the right hip. The are three models of movements of right / left hip and in consequence three groups and four types of scoliosis. Below we describe tests using for early discovery of scoliosis (Figures 1 - 10):

1. Bending test for scoliosis - Adams/Meyer test. Flexion test performed with bent spine (and the whole of the body). When the shape is round it is good / proper, when stiff and in straight contracture – there is (it shows) the beginning of scoliosis.
2. Side bending test for scoliosis (bending to the left and to the right leg during standing in abduction), also called Karski or Lublin test, it is a modified Adams/Meyer test – more sensible as Adams test. A specially - in "C" II/A scoliosis and II/B group of scoliosis show very early beginning of deformity.
3. Rotation movements of the body test (new test since 2006).

4. Permanent standing 'at ease' test – checking the habit of standing – on the right versus on the left leg. The length of time (cumulative time) is deciding in children with scoliosis. The standing on the right leg is only one of causative influence in I epg and II/A & II/B epg groups.
5. The symmetry or asymmetry of the waist test (an old test, but still very important).
6. Presence of an illnesses (e.g. rickets). Rickets and general laxity of joints - increase oncoming of scoliosis.
7. Anatomical anomalies of the spine (spina bifida occulta, pectus infundibuliforme, rickets). If present, the proper development of the spine is endangered.
8. Body build type - asthenic and picnic (bad), athletic (good).
9. Willingness to participate in sports, if yes - good, if no - bad.

Additional causes of scoliosis and presented tests – connected with CNS (central nerve system) (Fig. 10)

- A. Straight position / contracture of spine.
- B. Anterior tilt of pelvis.
- C. Laxity of joints

New rehabilitations exercises. Proper solution to the problem of scoliosis is an early prophylactics based on the new test for discovery of scoliosis and new exercises in context of the biomechanical etiology. The new rehabilitation exercises should remove the contracture in the pelvis, the hips and in the whole spine. The flexion - rotation exercises should be performed by very young children, already at 3 and 4. It is also important to change the standing, sitting and sleeping positions. The results of such treatment has proved beneficial in years 1985 (beginning of research about scoliosis problems) till 2014 (research with last observations). This matter is describing in details in third lecture / article.

Literature: see article about etiology of scoliosis and www.ortopedia.karski.lublin.pl

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FIGURES:

Fig. 1

Test of adduction (passive) – in straight position of joints
Left hip adduction bigger Right hip adduction smaller



New test: Introduced in (1984) 1995 – 2007. Test of adduction of hips in straight position of joints. Right leg is more stable for standing and children with scoliosis have habit of stand 'at ease' on the right leg mostly or only.

Figure 1 : Test of adduction of hips in straight position of joint

Fig. 2

Adduction of hips test (A)



Difference in active examination

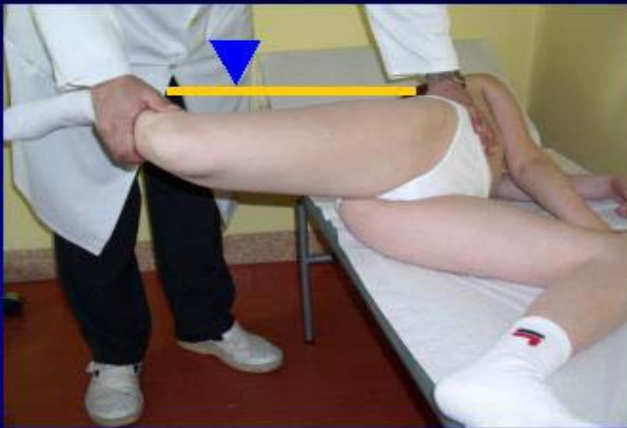
Active examination. Right hip – smaller adduction. Right leg more stable during standing.

Active examination. Left hip – bigger adduction. Left leg not chosen for standing.

Figure 2 : Test of adduction of hips in straight position of joint

Adduction of hips test (B)

Fig. 3



Difference in active examination

Other form of test. Examination more precise. Right hip – smaller adduction. Right leg more stable during standing.

Other form of test. Examination more sensible. Left hip – bigger adduction. Left leg not chosen for standing.

Figure 3: Test of adduction of hips in straight position of joint

Fig. 4



Duncan-Ely test
or Stahelli test
or Thom test

Figure 4: Ely Duncan test or Staheli test or Thom test. Test for checking the „anterior tilt of pelvis” (flexion contracture of hips)

Kneeling test. Test for checking the „anterior tilt of pelvis”. Present flexion contracture of hips.

Fig. 5



Figure 5 : Kneeling test. Test for checking the „anterior tilt of pelvis” (flexion contracture of hips)

**Adams/Meyer
bending test
[forward]**



Fig. 6



**Lublin
- side bending
test**



Figure 6 : Adams/Meyer bending test [forward] and Lublin – [side] bending test

Fig. 7

Loading on both legs



Loading on left leg

**Standing test on free (at ease)**

Loading on right leg

**Scoliosis***Figure 7 : Standing test on free (at ease)***Fig. 8**

Hips / pelvis rotation test. Movement to the left smaller because of external contracture of right hip

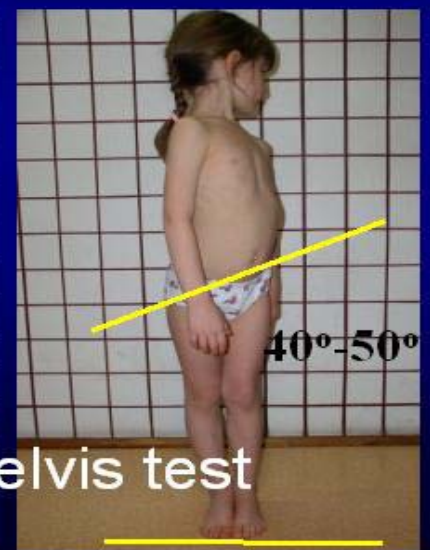
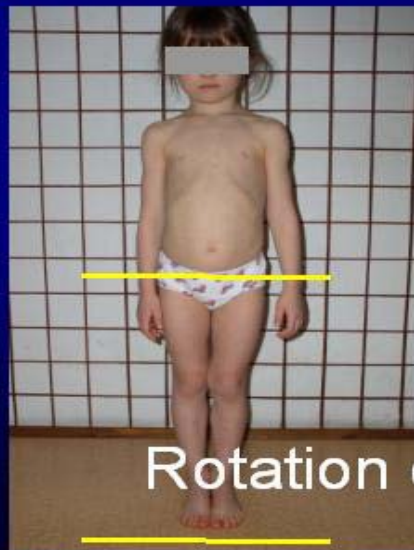
twist to the right**twist to the left****Rotation of hips and of pelvis test***Figure 8 : Hip rotation test. Movement to the left smaller because of external contracture of right hip*

Fig. 9

Sitting – test



Correct, protect
before scoliosis.



Wrong, straight position
of spine. Danger of scoliosis.

Figure 9 : Sitting – test. Straight sitting – wrong. Relax sitting – proper.

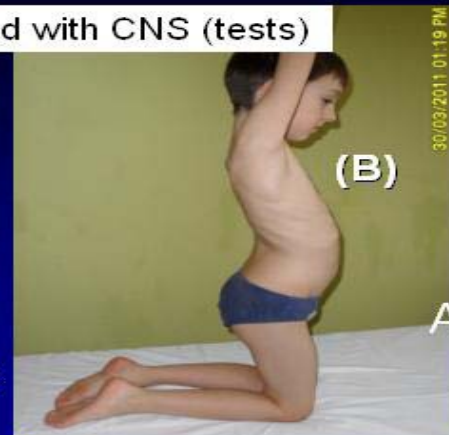
Additional causes of scoliosis connected with CNS (tests)

Fig. 10



(A)

Straight contracture of spine



(B)

Anterior
tilt of
pelvis



(C)

Laxity of joints

Additional causes
of scoliosis – connected
with CNS. (A) Straight
contracture of spine
(B) Anterior tilt of pelvis
(C) Laxity of joints

Figure 10 : Additional causes of scoliosis connected with CNS - tests (Central Nerve System)

II. ACKNOWLEDGEMENT

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