Contribution to an adapted physiotherapy in the hyperlaxity syndromes.

Kaux JF, Foidart-Dessalle M, Toussaint G, Forthomme B, Croisier JL, Crielaard JM. Departement of physical medicine and rehabilitation ULg.
What is hyperlaxity? (1)

- **Increased articular range of motion**
  (encountered in individuals of same age, sex and ethnic group)

- **Familial Simple Joint Hypermobility Syndrome**
  (5 to 10% of the Caucasian population)
What is hyperlaxity? (2)

- Hereditary dystrophies with abnormal collagen structure or metabolism (EDS, MFS, Larsen syndrome, Desbuquois syndrome, OI, Cutis Laxa)

- Acromegalia, hyperparathyroidism, chronic alcoholism and of specific training (dance, gymnastics…)

Beighton scale

Beighton & Horan, 1969
Scale of Brighton (1)

Grahame et al, 1992
Grahame et al, 2000

**Major criteria:**

- A Beighton score of 4 out of 9 or greater
- Arthralgia for longer than 3 months in four or more joints
Scale of Brighton (2)

Grahame et al, 1992
Grahame et al, 2000

- **Minor criteria:**
  - A Brighton score of 1, 2 or 3 out of 9
  - Arthralgia in one to three joints or back pain or spondylosis, spondylolysis, spondylolisthesis
  - Dislocation in more than one joint or in one joint on more than one occasion
  - Three or more soft tissue lesions (e.g. epicondylitis, tenosynovitis, bursitis)
  - Marfanoid habitus
  - Skin: striae or hyperextensibility or thin skin or abnormal scarring
  - Eye signs: drooping eyelids or myopia or antimongoloid slant
  - Varicose vein or hernia or uterine/rectal prolapse
  - Mitral valve prolapse
Scale of Brighton (3)

Grahame et al, 1992
Grahame et al, 2000

→ Hypermobility syndrome if:

- 2 major criteria
- 1 major criterion + 2 minor criteria
- 4 minor criteria
Advantages
Inconvenients

- Less stable articulations
- Recurrent subluxations
- Frequent enthesisopathies
- Abnormal fragility to traumatisms
- Peripheral nerve lesions
- Chronic pain (shoulders, hands, hips, knees, rachis)

→ Many pharmacological and physical treatments are unhelpful!
Case 1: MFS (1)

- Girl, 19 years
- 182 cm, 56 kg
- MFS detected at the age of 4 + family antecedent
Case 1 : MFS (2)

- Symptomatology :
  - Marfanoid habitus
  - Scoliosis
  - Kyphosis
  - Arachnodactyly
  - Polyarthralgy (wrists, shoulders)
  - Dorso-lumbalgy
  - Subluxation of the ankles
  - Tendinitis of left cubital posterior
  - Mitral valve prolapse
  - Myopia
Case 1: MFS (3)
Case 1 : MFS (4)

- Treatment :
  - Postural correction
  - Reinforcement concentric of the abdominal and paravertebral muscles on the convex side of the scoliosis
  - Proprioceptive exercises avoiding carefully stretching even autostretching
  - Home individualized exercises
Case 1 : MFS (5)

- Results :
  - Rachis less painful
  - Partial correction of the cyphosis and the forwards bending of the shoulders
  - Stronger abdominal muscles
  - Improvement of the quality of life
Case 1 : MFS (5)

- MFS specificity of kinesitherapy:
  - Stretchings avoided
  - Adapted muscular training (cardiac insufficiency)
Case 2 : EDS III (1)

- Girl, 16 years
- 170 cm, 55 kg

Clinical hyperlaxity which can correspond to EDS III (immuno-histochemical but not genetically) + family antecedents of hyperlaxity
Case 2 : EDS III (2)

- Symptomatology:
  - Pains in the right elbow and wrist
  - Repetitive knees and ankle sprains and subluxations
  - Epistaxis
  - Myopia
Case 2 : EDS III (3)
Case 2 : EDS III (4)

- Treatment :
  - Wrist and elbow muscles reinforcement and proprioceptive training in order to restrict the articular range of motion
  - Isokinetic device to protect the muscles for excessive load
  - Orthesis when playing tennis
  - Home individualized exercises
Case 2: EDS III (5)

- Results:
  - Decrease in pain
  - Increase in the stability of her right upper limb even when she plays tennis
  - Isokinetic evaluation objectivizes an improvement of maximal moment of 20 to 25% in all trained muscles
Case 2 : EDS III (6)
Case 2 : EDS III (7)

- EDS specificity of kinesitherapy:
  - To limit the articular amplitude → semiflexible orthosis
  - Stretchings avoided
  - Concentric muscular reinforcement
  - Isokinetic device
Case 3 : OI (1)

- Girl, 13 years
- 163 cm, 62 kg

- Clinical diagnosis of OI at the age of 11 (no genetic confirmation), family antecedents of multiples fractures and osteoporosis
Case 3 : OI (2)

**Symptomatology**:

- Multiples fractures (forearm x2, left foot, right scaphoid)
- Multiples luxations (patella, mandible, left wrist)
- Repetitive sprains of the wrists and ankles
- Osteoporosis
- Strabismus
- Epistaxis
- Heamatoma
- Slow cicatrisation
Case 3 : OI (3)
Case 3 : OI (4)
Case 3 : OI (5)

• Treatment :
  - Mandible splint
  - Proprioceptive reeducation on instable Freeman plate
  - Muscular active and activo-passive reinforcement in physiotherapy
  - Learned successfully to avoid and/or reduce the subluxations of the wrist, mandible and patella
  - Home individualized exercises
Case 3: OI (6)

◆ Results:

- Reduction in the subluxation
- Reduction in the painful sprain
Case 3 : OI (7)

- OI specificity of kinesitherapy :
  - Prudence to avoid any fracture
  - Avoiding important resistances
  - Isokinetism
  - Exercises of proprioception
  - Osteodensitometric examination
Guidelines for kinesitherapy in hyperlaxity syndromes

- Avoid the stretchings
- Osteodensitometry before any mobilisation
- Proprioceptive training to an adequate limited articular range among patients prone to frequent luxations/subluxations
- Each treatment must be adapted to individual patient (cardiac problems, sport practice…)
- Home individualized exercises
Thank you for your attention.

http://hdl.handle.net/2268/2008