

**Publication by:  
Jean Claude de Mauroy**

# **The Lyon Method e-learning Syllabus**





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Lyon Method Course for Scoliosis  
Online Certification  
Non Surgical Management

Scoliosis



## Biography

Jean Claude de Mauroy de Curière de Castelnau, born on November 6th, 1947 in Lyon (France)

Thesis of Medicine in 1974 to the Faculty of Medicine of Lyon:  
“*Contribution to the study of Infantile Scoliosis.*”

### EDUCATION:

Université Claude Bernard Lyon 1 (FR)

Medical doctor

1974

### GRADUATE IN:

- Physical and Rehabilitation Medicine
- Biomechanics of the musculoskeletal system
- Electromyography
- Osteopathy and Manual Medicine
- Sports Medicine

### Medical Practice:

- 1972 – 1987 Centre des Massues - Lyon France Head of department of Pediatric Orthopedics under the Direction of Pierre Stagnara

- 1987 – 2019 Clinique du Parc – Lyon France Head of department of Orthopaedic Medicine President of The European Spine Centre

### University Responsibility:

Since 1975 Lecturer in:



- The Claude Bernard Lyon 1 University: Institut des Techniques de Réadaptation

Topics : Orthopaedic, Orthosis, Osteo-Articular Radiology.

- The Faculty of pharmacy of Lyon:

Spine Orthotics

- The Biomedical Department of ISTIL (Institute of Sciences and Techniques of the Engineer Lyon):

Biomechanics of the Spine

### **Research Program**

(grant fund 150,000 € by the ANVAR - NATIONAL AGENCY FOR THE PROMOTION OF RESEARCH)

From 1987 to 1994, Research and development of one Cad Cam system for Scoliosis bracing. This research ended in the realization of the full 3D Orten Surface topography system, now worldwide used.

**Email:** demauroy@aol.com

### **Physiotherapists (workshops)**

#### **Jean Noël Voutey:**

Physiotherapist in Dr de Mauroy's department at the Centre des Massues in Lyon.

Founding member of the European Spine Centre. Main teacher of the Lyonnaise Method of Physiotherapy for the last 20 years.

#### **Georges Mollon:**

Director of the Physiotherapy Department of the "Centre des Massues". Co-author with Stagnara and de Mauroy of the latest book on the Lyon method.

### **Orthotists**

**Lecante - Proteor - Lyon (FR)**

**Roga - Enna (IT)**





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## Syllabus

### LYON METHOD CERTIFICATION COURSE TITLE

*The Lyon Method for orthopaedic non-surgical treatment of scoliosis and other vertebral deviations.*

This course get back to basics of the classic face-to-face training course conducted over 2 and a half days and which is available to you on SSOL. It benefits from all the advantages of digital technology.

### COURSE DESCRIPTION

Intended for all those who want to acquire specialized knowledge in the field of vertebral deviation treatment and understand the physiopathological and biomechanical basis of these treatments. Vertebral deviations include: scoliosis, sagittal deviations such as kyphosis due to Scheuermann's disease or not, and spondylolisthesis. Thoracic deviations such as the pectus often associated.

The students should be able to analyse each pathological situation and develop the most appropriate therapeutic management. It is not a question of imitating exercises, but of acquiring the necessary skills to choose the most suitable exercise or construct the better brace.

### COURSE FEATURES

16 chapters or Sessions

All skill levels (after Medical or Paramedical Degree)

English Language

Self Assessment during thee course Lyon Method Certification

### DATE

This course will begin on September 5th, 2020. The maximum advise time period is 4 months.

## PEDAGOGICAL CONTENT

### More than 50 videos for a total of 15 hours

10 lectures (5 hours)

21 core (6 hours)

17 Workshops (2 hours)

6 Focus on anatomy & physiology (1:20 hour)

About 1500 commented slides in 5 languages

Approximately 250 Self-Assessment questions Quizzes

11 Decision tables and 9 Decision tree

8 X-ray corner

4th dimension of scoliosis (the story of Lea from 6 to 60 years)

FAQ: How to answer all the questions patients have!

Celebrity Carousel

19 skills and learning outcomes commented

17 digital Workshops with comments

Research module

Forum module

4 Live classroom every month: one for each Section

4 Practical works every month

## FINAL CERTIFICATION

To obtain the certification a Final Knowledge Exam must be successful.

## LOCATION

This course is delivered completely online and benefits from a dedicated Learning Management System for certification.

You will need to:

- Follow and complete the Logbook
- Complete a series of short quizzes along the way,
- Complete a final exam held every three month (to book-in at your convenience)
- Submit the Logbook for evidence of competency

Direct link to New York recorded course registration and handout which can be downloaded: <https://ssol1.vhx.tv/checkout/lyon-method/purchase>

Please contact: [ssolglobal@gmail.com](mailto:ssolglobal@gmail.com) for information about the on-



line session.

## SPECIFIC OBJECTIVES

1. Real integration into a Scoliosis treatment team, i.e. for a PT to be able to carry out the corrective postures allowing a CPO to carry out a brace moulding in a corrected position.
2. Understanding the anatomical, neurophysiological and biomechanical basis of all vertebral deviations, in particular the extra-pyramidal system and 3D correction by coupled movements which are the foundations of the Lyon Method.
3. Acquisition of the necessary basis of radiological interpretation to restore the isostatic balance of the spine in the sagittal plane specific to each patient.
4. Knowledge of the main orthopaedic pathologies associated with vertebral and thoracic deviations.
5. Select the most appropriate exercises and braces using simple tables and decision trees.
6. Be able to answer the patient's usual questions about his or her condition.
7. Information of new technologies to optimize non-surgical treatment
8. Anticipate the evolution thanks to the scientific evidence of the last results of the non surgical treatment.

## COURSE MATERIALS AND REQUIREMENTS

We recommend the use of a wide screen placed 10° below the horizontal line of vision. For the X-ray corner, it is useful to have an A4 printer with photo paper and transparent film.

Access codes will be provided at the time of registration. Registration for webinars is optional, but highly recommended.

The course material may be freely used locally and partially reproduced.

## COURSE POLICIES

This course is asynchronous, you manage your time according to your possibilities. It is divided into 4 sections. Each section has 4 sessions for a total of 16 sessions. In each session several modules with read-



ings, videos, X-ray corner, decision tables and trees, 4th dimension of scoliosis ...Each session requires a minimum of 2 hours of work. The ideal pace is 1 to 2 hours per day 5 days a week. The use of the forum is highly recommended.

### **ATTENDANCE**

A final exam will be held every 3 months. Participation is conditional to the sending of the self-filled logbook. Even if we have the possibility to do so, connection times are in principle not controlled. The sequence of modules is adapted to a logic of progression and understanding.

### **ACADEMIC HONESTY**

This course is not academic, but the principles are the same.

### **TECHNOLOGY**

There are no technical limits, the most important thing is to work in a quiet environment.

### **ACCESSIBILITY AND INCLUSION**

This course is open to all professionals, as long as they have computer equipment to compensate for any sensory deficit.

### **GRADING AND ASSESSMENT**

Grading scale Final Quiz

90-100%	A
80-89%	B
70-79%	C
60-69%	D
<60%	Failed

The final quiz consists of 50 items from the entire program and is adapted to the profession. Many items are chosen from those available on the website.

### **COURSE SCHEDULE AND CALENDAR**

It is important to make your own course schedule at the time of registration and to choose a final exam date.



### **COURSE LEVELS**

Registered New York face to face Course is an Introductory Session. SSOL can give the attendance Certificate or Basic Level. Lyon Method Certification course is a more serious course which gives all the elements to really practice the Lyon Method. SSOL is working on a further level of coaching to teach the Lyon Method.

### **EDUCATIONAL UNITS**

Sections: This course has 4 sections. Each section is divided in 4 sessions

#### **Section I: Fundamentals**

##### **1.1a History of the Lyon Method**

From Middle-age to Pravaz

Lyon Method these last 200 years

PSSE & Lyon method

Extra-pyramidal assessment

It is possible to evaluate the effects of physiotherapy on the extrapyramidal system

##### **1.1 b Very long term results (plaster cast)**

The brace with cast significantly reduces the spontaneous evolution of scoliosis in adulthood.

##### **Workshop 1: Balance - The 4 extra-pyramidal tracts**

How to stimulate the four tracts of the extra-pyramidal system?

##### **1.2 a Bipedalism & verticalization**

Scoliosis is a disease of verticality

Bone changes

Soft Tissue Modifications

Nervous and cerebral changes

Fascias adapt to verticality thanks to tensegrity.

##### **1.2 b Tensegrity, fascias**

History, Definitions





Characteristics of a tensegrity system

Tensegrity, posture and plastic deformation

The subcutaneous tissue is a tensegrity system: massages+++.

The brace must ensure creep: by(hypercorrection and total time). The mobility of all segments is essential.

[Workshop 2: Tensegrity in standing position](#)

How to restore tensegrity with standing exercises?

### 1.3 a Scoliology of AIS

Definitions

Epidemiology

Genetics | Melatonin (Extra-pyramidal system)

All our progress has not improved the management of Idiopathic Scoliosis.

Why is that ?

[Workshop 3: Tensegrity in sitting and quadruped position](#)

How can tensegrity be restored with sitting and quadruped exercises?

### 1.3 b Chaos theory:

Chaotic & linear scoliosis

Chaos theory

Practical consequences

Linear Scoliosis: Vicious circle

[Workshop 4: Tensegrity & Eutonia in decubitus](#)

How to restore tensegrity with eutonia exercises in the supine position?

### 1.4 Three dimension scoliosis by coupled movements

Movement of a solid

Reference planes

3D terminology

Frontal Plane | Sagittal plane | Horizontal plane

Vertical axis

Solid Geometry

Detorsion

3d Muscular chains

3d by coupled movements

[Workshop 5: Tensegrity & abdominal muscles strengthening](#)



How can tensegrity be restored with exercises to strengthen the abdominal muscles in the supine position?

## Section 2: Pathology

### 2.1 Scoliosis on a lifespan

Infantile (early onset) scoliosis

Juvenile scoliosis

Adolescent scoliosis Idiopathic & other etiologies

Scoliosis after risser 2

ASA Adolescent scoliosis in adult

DDS Degenerative De novo scoliosis

ASD Adult Spinal deformity

Scoliosis evolves lifespan with different characteristics, goals and treatments at each age. (Fourth dimension of scoliosis)

[Workshop 6: Ergonomy 1](#)

The Lyon method includes ergonomics and teaches the 24 hours of the back.

### 2.2 a Biomechanics of vertebral deviations

Frontal Statical & Dynamical biomechanics

Sagittal Thoracic biomechanics

Plastic deformation of visco-elastic structures

Therapeutic outcomes (plastic deformation & total time bracing)

Sagittal lumbar biomechanics

Simplified biomechanics in the frontal plane and in the sagittal plane essential for treatment.

[Workshop 7: Ergonomy 2](#)

How to lean forward without bending the knees in scoliosis?

### 2.2 b Lumbo-pelvic parameters - Spondylolisthesis

Spondylolisthesis: Anatomy, Epidemiology, Natural history

Clinical assessment

Radiological assessment: Lumbo pelvic parameters & Lumbo-sacral angle

Non surgical orthopaedic treatment

Sport & spondylolysis

Bracing results

Very high frequency, a specific lumbo-sacral angle, non-surgical



treatment allows the continuation of sport activities.

### [Workshop 8: Ergonomy 3](#)

Don't forget Technical aids more specific to scoliosis!

## 2.3 kyphosis

Kyphosis: Radiological definition

Social background

Epidemiology

Clinical assessment

Radiological parameters & morphotypology

Etiologies & Classification

Main etiology: Scheuermann disease

Non surgical treatment (with history)

Lyon Bracing results

Hyperkyphosis is less well known than scoliosis, but much more painful. Non-surgical orthopaedic treatment is effective.

### [Workshop 9: Bruno 1 - KYPHOSIS - Assessment & analytic physiotherapy](#)

Bruno is a 15-year-old boy with thoracic kyphosis due to Scheuermann's disease.

## 2.4 Thoracic deformation & Breathing scoliosis

homo sapiens Rib cage

Pectus excavatum

Recklinghausen & iatrogenic

Pectus carinatum

Scoliosis & breathing

Bracing & pulmonary function

Trunk deformities are not only of the spine, but also of the rib cage deformities. Non-surgical treatment is effective.

### [Workshop 10: Bruno 2 - Global physiotherapy ½](#)

Do you know the locomotive exercise?

## Section 3: Physiotherapy

### 3.1 Lyon method physiotherapy; Principles

Physiological basis

3d by coupled movements



Vicious mechanism of adult scoliosis

Principles | Phases | Stages | Position | Steps

The Lyon method of Physiotherapy is based on the Physiology of scoliosis on a lifespan.

### [Workshop 11: Bruno 3 - Global physiotherapy 2/2](#)

Do you know the techniques of the 3 squares?

## 3.2 Lyon method physiotherapy - 13 Basic exercises

AIS: Clinical assessment

1. Awareness (Tecto-spinal tract)

2. Kyphotization (Longitudinal sensors)

3. Passive concavity mobilization (tensegrity)

4. Facet joints mobilization (Tensegrity all segments must be independent)

5. If ASALIJ: Opening ilio-lumbar angle

6. Stretching of short muscles (hold – relax)

7. Lumbar isostatic sagittal balance and frontal shift

8. Thoracic isostatic kyphosis and frontal bending

9. "Grand porter" self active axial elongation (Geometrical detorsion)

10. Proprioceptive exercises: Swiss balloon, sitting (Vestibulo-spinal tract)

11. Balance exercises: Tilting tray standing (Rubro-spinal tract)

12. Core stabilization (Recoupling extra-p. & pyramidal system)

13. Dynamic beam. All tracts, Statesthesia & kinesthesia

The 13 basic exercises can be used in children with specific indications depending on the stage of treatment. ( Decision table with certification )

### [Workshop 12: Bruno 4 - Proprioception & Integration](#)

Proprioception and cortical integration in the sagittal function plane.

## 3.3 (Special PT)

### Adult Scoliosis Update

#### [Workshop 13: Adult scoliosis ASA](#)

Contrary to adolescents, adult scoliosis physiotherapy is rarely practiced in the standing position.

#### [Workshop 14: Adult Scoliosis DDS](#)

The key word in adult scoliosis is pelvic anteversion.



**Sport**  
**Schoolbag**  
**Sitting position**

**Massage Therapy**  
**Workshops 15, 16 , 17**

## **Section 4: Bracing**

### **4.1 Lyon brace - New artbrace**

Bracing Objectives:

Guiding the growth during the night (all braces)

Nucleus refocusing (hypercorrective nightbrace)

Plastic deformation (Creep total time bracing)

Decrease of asymmetrical load during the day (Composite beam of symmetrical braces)

Remodeling of apical vertebra deformation (in-brace correction >48%)

Bracing innovations

Controlled asymmetry

Very high Rigidity

Solid Geometry: Geometrical & Mechanical Detorsion

### **4.2 Results:**

Risser>2 (soft tissues)

Final results ARTbrace (not only stabilization, but also improvement)

Adult ARTbrace (Corrective bracing)

### **4.3 Special CPO) The step by step**

Regional Corrective Moulding in 3 steps with 4 columns digitizer

Processing with Specific Software

Manufacturing like all rigid braces

Fitting

Delivery

Checkup



## **TESTING**

Rosemary Marquese (PT) - Australia

Andrea Lebal (PT) - Canada

Tirta Hidajat (CPO) - Indonesia





## Appendix 1 - PRACTICAL WORK

Practical work is seen by the vast majority of teachers as an essential and integral part of science education. In fact, many see it as an indispensable aspect of the task of “science teacher” (*Donnolly 1998, from the journal Practical work effectiveness in primary/sec schools Abraham*).

### Definition

Millar described a practical activity as “any science teaching and learning activity that, at some point in time, involves students, working individually or in small groups, observing or manipulating objects to develop their understanding”. (*Millar (2009)*). It is described in the national strategies as: Any activity that enables students to have direct, often practical experience of the phenomena they are studying” (*The National Strategies (2008)*).

### Objective

The main objective of the practical work is to involve students, helping them to develop many important skills. The overriding principle, however, is “to make connections between the concrete and the abstract world”. (Reflection on practical work). Practical work in science education is essential to help students learn and remember things more clearly.

### Means

These are “practical” activities such as the practical realization of a Lyon brace using an iPad for a CPO, the practical realization of an exercise characteristic of the Lyon method for a PT or clinical case

management for a doctor.

These types of activities can help improve the development of students' practical skills, as well as help them understand the main scientific concepts and phenomena.

