Callidae Manus

RECOMMENDED PRODUCT

Practical Handbook

SPINAL MANIPULATIONS

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Content

Introduction to spinal manipulations

What are spinal manipulations?

Manipulation is an induced movement of one or more junctions beyond the physiological limit of its passive articular mobility.
Spinal manipulations are passive forced mobilizations which aim to bring the elements of one or more junctions beyond their usual movement range to reach (without overcoming) their anatomical movement limit.

Mainly, manipulation movements can be listed in flexion, extension, rotation and latero-flexion. All these movements, performed by the therapist's hands, can be single or combined and always oriented to the level or the levels of the selected spinal segments.

Then, being these therapeutical moves, their indications and contraindications must be established by a careful anamnesis a specific evaluation of every single patient.

Diagnosis always needs to be worked out by a doctor and the therapist or another doctor who is going to perform the manipulation should also make his accurate evaluation of the patient before manipulating. This point is really important also in order to decide which kind of manipulations have to be performed.

The manipulation techniques taught in this manual will always have to be combined with a pre-manipulation test and by a post-manipulation evaluation; to help you and your patient to realize the techniques' efficiency and to evaluate possible clinic strategy changes, in case of necessity.

Manipulations are split in 3 phases:

1. Establish your and your patient's correct position: This first step is essential and has a decisive role in the success or unsuccess of the manipulation.

2. Find the so called "restriction barrier": The barrier is the resistance we find when the passive movement of the articular segments meets a stop.

3. Thrust execution: Thrust is the impulse, the manipulative push to perform against the restriction barrier. It is a quick movement, that usually followed by a sound, defined as a "crack".

This sound, according to some researches, is due to the cavitation phenomenon, the creation of small gas bubbles dissolved among the synovial liquid, due to the separation of the articular surfaces.

The Thrust must never overcome the anatomic movement of the articulations, as this could cause dislocations and/or musculoskeletal lesions.

Manipulations' classification:

- **Direct Manipulations:** All the manipulations performed through a direct pressure on the vertebral elements called spines of a vertebra and/or transverse process.
- **Indirect Manipulations:** All the manipulations through which we manage to move the spine using the body's leverages like pelvis, shoulders or the head.

• **Semi-indirect Manipulations:** All the manipulations combined of a direct manipulation point (spine) and an indirect manipulation one.

Applications

- ✓ Hernia, discopathy
- ✓ Cervical pain, cervico-brachialgy, low back pain.
- ✓ Dorsalgia, sacralgia, crural pain, ischialgia.
- ✓ Scoliosis, hyperlordosis, hyperkyphosis.
- ✓ Fake dysmetrias correction
- ✓ Facial neuralgia
- ✓ Paraesthesia
- ✓ Whiplash consequences
- ✓ Neuropathogenic pain
- ✓ Hemicrania and cephalea
- ✓ Carpal tunnel syndrome (Double Crush Syndrome)

N.B. To proceed applying the spinal manipulations taught in this manual, only patients who are showing diagnosis and instrumental exams evidences (X-Rays, MRI, CAT screenings) should be received. Moreover, always refer to the spinal processes and pain mapping explained further in this manual, handling the vertebral segments which are connected to the pain zone showed in the mappings.

Contraindications

Even if this course is only addressed to doctors and physiotherapists, I suggest to take the proper preventative measures before choosing to perform a manipulation on your patient, because his/her health is always the priority.
Basic and often neglected, are the medical diagnosis and the instrumental exams that the patient needs to have to be able to rule out all the contraindications to spinal manipulations.

You mustn't manipulate without a medical diagnosis and without checking by yourself the results and images of instrumental exams. Only after a clear medical diagnosis and instrumental exams (MRI, X-Rays, CAT screenings) you can give priority to the patient's health.

Always remember that you are responsible of your patient's health, so before manipulating, you must make sure that no contraindications to spinal manipulations are detected.

If your patient suffers ependymoma, for example, according by its location, it can cause common symptoms like neck or back pain. In this case, manipulation could seriously put the patient's health at risk.

Your patient must have a medical diagnosis, which is fundamental to have a completely safe manipulative approach.

Absolute contraindications:

- ✓ All the tumour affections (primary or secondary, innocuous or malignant)
- ✓ Acute or chronic infectious diseases (spondylodiskitis, arthritis, TB)
- ✓ Recent traumas (fractures, dislocations, sprains)
- ✓ Cauda syndrome
- ✓ Medium or severe spinal instability
- ✓ Rehumatic diseases
- ✓ Juvenile osteochondrosis
- ✓ Severe osteoporosis
- ✓ Siringomyelia
- ✓ Radiculalgia with paralysis
- ✓ Pott's disease (tuberculous spondylitis)
- ✓ Cervical-occipital hinge malformation
- ✓ Spinal of basic-spinal insufficiency

Relative contraindications:

- ✓ Patient is scared by manipulations
- ✓ Technically unexperienced operator
- ✓ Depression and/or severe psychiatric issues.

Red Flags
(Danger indicators hidden among symptoms)

- ✓ Pain onset before the age of 20 or after 55.
- ✓ Severe traumas in recent history (fractures)
- ✓ Vertigo, nausea
- ✓ Permanent pain, progressive, permanent and not mechanic (not solved by lying on a bed)
- ✓ Thoracic spine pain
- ✓ Malignant tumour in medical history
- ✓ Long use of corticosteroids and other long-term medicines (changes in osseous integrity, hepatic functionality and other systems of the body)
- ✓ Drug abuse, use of immunosuppressive drugs and HIV (infection risk)
- ✓ General unease
- ✓ Unexplained weight loss
- ✓ Neurological diffuse symptoms (Including cauda syndrome)
- ✓ Structural deformity
- ✓ Fever and night sweat
- ✓ Bladder changes or intestinal aches (urinary retention and fecal incontinence)
- ✓ Signs or symptoms of marrow compression (perineum drowsiness, incontinence)

This is a quite long list but even having diagnoses, you have the responsibility to check these areas during the evaluation of patients with spinal pain.

Further investigations suspecting the presence of a severe pathology:

- ✓ Pain is permanent
- ✓ Pain is not connected to movement
- ✓ Presence of severe spasms
- ✓ Morning rigidity lasting more than 30 minutes
- ✓ Presence of severe pain during the night
- ✓ Night sweat
- ✓ Cancer in medical history
- ✓ Recent traumas or fractures

Further investigations suspecting the presence of a significant bone-marrow suppression

- ✓ Symptoms do not match with dermatomes.
- ✓ Ataxia while walking
- ✓ Increase of reflexes (hyperreflexia)
- ✓ Extensor hallucis phenomenon
- ✓ Bladder changes or intestinal aches
- ✓ Global progressive weakness of upper and lower limbs

If the patient is taking the following medicines, a differential diagnosis and a particular treatment should be considered.

- ✓ Antidepressants
- ✓ Anticoagulant
- ✓ Oral steroids
- ✓ Strong analgesic drugs
- ✓ Myorelaxants
- ✓ Opiate

Obviously there are risks with manipulations but it's a part of every therapeutic approach. Diagnosis and an accurate pre-manipulation evaluation plus a proper technique will strongly reduce the risk of incidents, considered as exceptions anyways.

The most serious incidents such as those caused by imprudent operation in presence of a latent vertebrobasilar insufficiency, could cause Wallemberg's syndrome (lesion of anterior and posterior cerebral artery) with the clinical picture of side-bulbar lesion, also Tetra and Paraplegia are due to wrong manipulations performed on vertebral columns with metastasis, Bozzolo disease, severe osteoporosis, Pott's disease (tuberculous spondylitis), hematological and metabolic diseases.

Evaluation

After examining the dysfunctional comprehensive in the introduction, let's focus on understanding these spinal dysfunctions through:

- ✓ A good anamnesis
- ✓ Reading the medical report and understanding the instrumental diagnoses (X-RAYS, MRI)
- ✓ Clinical reasoning, functional tests and palpation

A good anamnesis

This point is very important for the success of the manipulative treatment, as a big data quantity is correctly collected during the first check will strongly help the treatment to be safer and more effective.

For sure if you are a physiotherapist you will face a patient with a certain diagnosis, if you are a doctor instead, you should be able to do it by yourself.

In both the cases, you have to make your first evaluation associating that with the medical diagnosis and both are important to evaluate the complete overall patient's condition in order to decide the best manipulative treatment.

Reading the medical report and understanding the instrumental diagnoses (X-RAYS, MRI)

X-rays allow to know the general situation of the possible existing "structural deformation" while detecting the "dysfunctions", revealing quite clearly the involved intervertebral disks. Even just providing information about skeletal structure, the *conventional radiology* still maintains a key role in evaluating the spinal deformations and arthritic degenerations.

While reading the X-ray report it's important to take in account the existence of deformations such as scoliosis because it anticipates the presence of painful reversible dysfunctions that will be analyzed further.

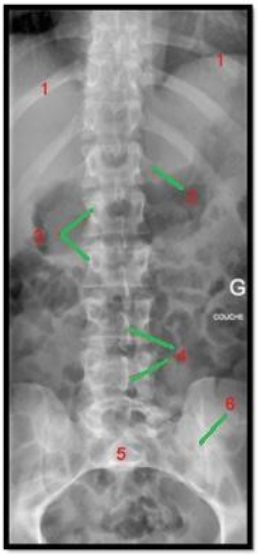
CAT screening provides a good evidence related to the pain at intervertebral disks and the presence of hernia or discus protrusion.

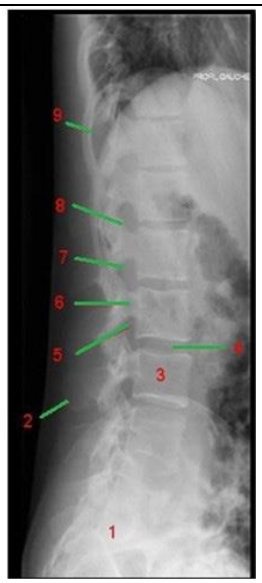
The CAT Screening is the only exam allowing the direct investigation about the vertebrae, intervertebral disks and spinal marrow, cauda roots and subarachnoid spaces.

While reading the MRI report it's important to take in account the existence of protrusions or discus hernias because they anticipate the possible presence of painful reversible dysfunctions that will be analyzed further.

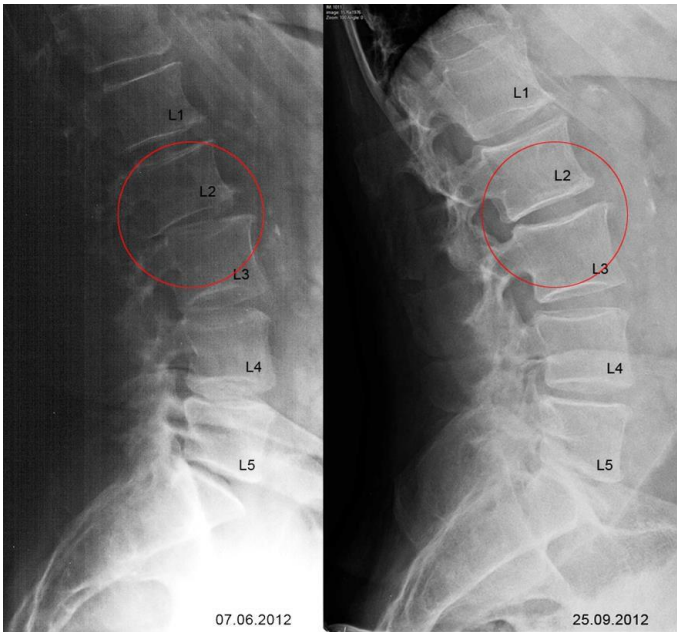
It is very relevant to understand the position of the hernia or protrusion and the symptomatologic situation of the patient, because they often don't match.

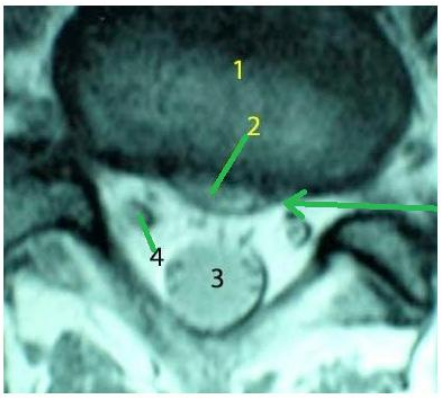
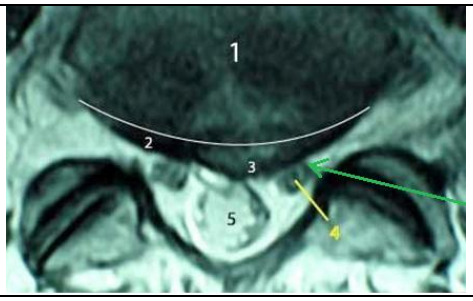
For example, if a patient suffers a right paramedian L5-S1 hernia and shows a right crural pain (possible), it's quite easy to understand that the hernia is not the cause of this patient's symptoms.

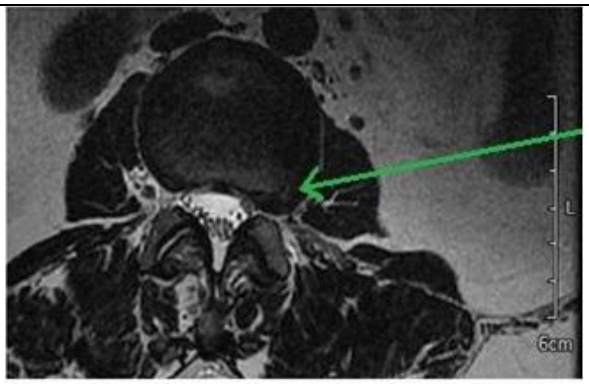
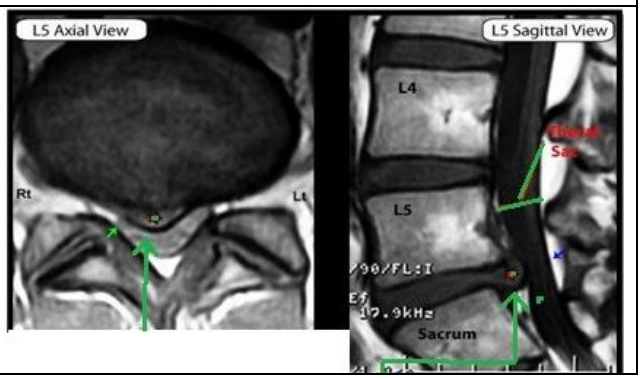
LUMBAR X-RAYS AP (anterior-posterior) In this case, according to my experience, I can tell that the crushing of the crural or femoral nerve is almost always caused by dysfunctional complexes of the dorso-lumbar spine. 1. Costal area 2. Transverse process 3. Peduncle 4. Spine of a vertebra 5. Sacrum 6. Sacrum-iliac joint	
LUMBAR X-RAYS SL (Side lateral) 1. Sacrum 2. Spine of a vertebra 3. Vertebral body 4. Interbody space 5. Intervertebral conjugation foramina 6. Peduncle 7. Inferior articular process of the sacrum 8. Superior articular process of the	

sacrum 9. Costal area	

RETROLISTHESIS L2 - L3



LUMBAR MRI 1. Intervertebral disk 2. Median protrusion 3. Spinal marrow 4. Nerve root Median protrusion Zero impact, no crush phenomenon	
Median protrusion Impact = Very light crush phenomenon	

ISn Paramedian protrusion Impact = Important crush phenomenon Lumbar Disk L5 RM T1 Axial Median 4mm Hernia	
Lumbar Disk L5 RM T1 axial + 9mm Saggital Extruded Hernia	

Clinic Reasoning, functional tests and palpation

I should tell you that all the phases are important and that's the truth but for sure what I am going to present you is something you must absolutely not exclude.
Functional tests and palpation as an evaluation of the correct functioning of muscular compounds will help you to understand that the instrumental exams state something different from the body itself. In this case my experience can be helpful and that's why I suggest to evaluate everything and to "listen" to your hands during the palpation.

There are several schools of thought which suggest the therapist to choose a pre-manipulative evaluation rather than another. I chose to teach you the evaluation about the spinal processes, that I use in my clinic activity and has given me just positive results with my patients so far.

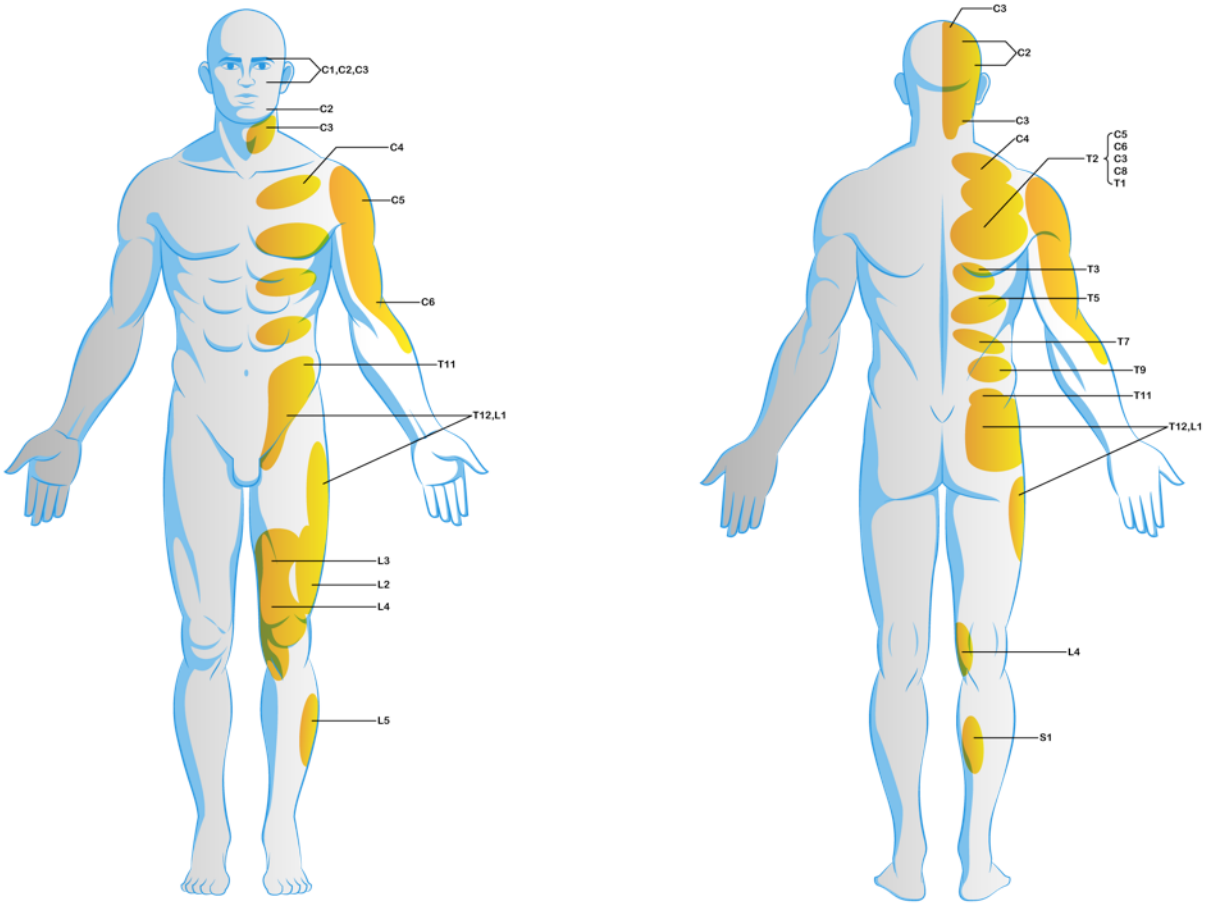
While the tests about spinal processes and the direction of the manipulation that I teach often defer from Robert Maigne's manual medicine, the pain mappings that we will consider are almost the same.

The manipulative approach that I teach is more mechanical than neuro-physiologic and is aimed to get free the nervous roots which correspond to the detected vertebral dysfunctions.

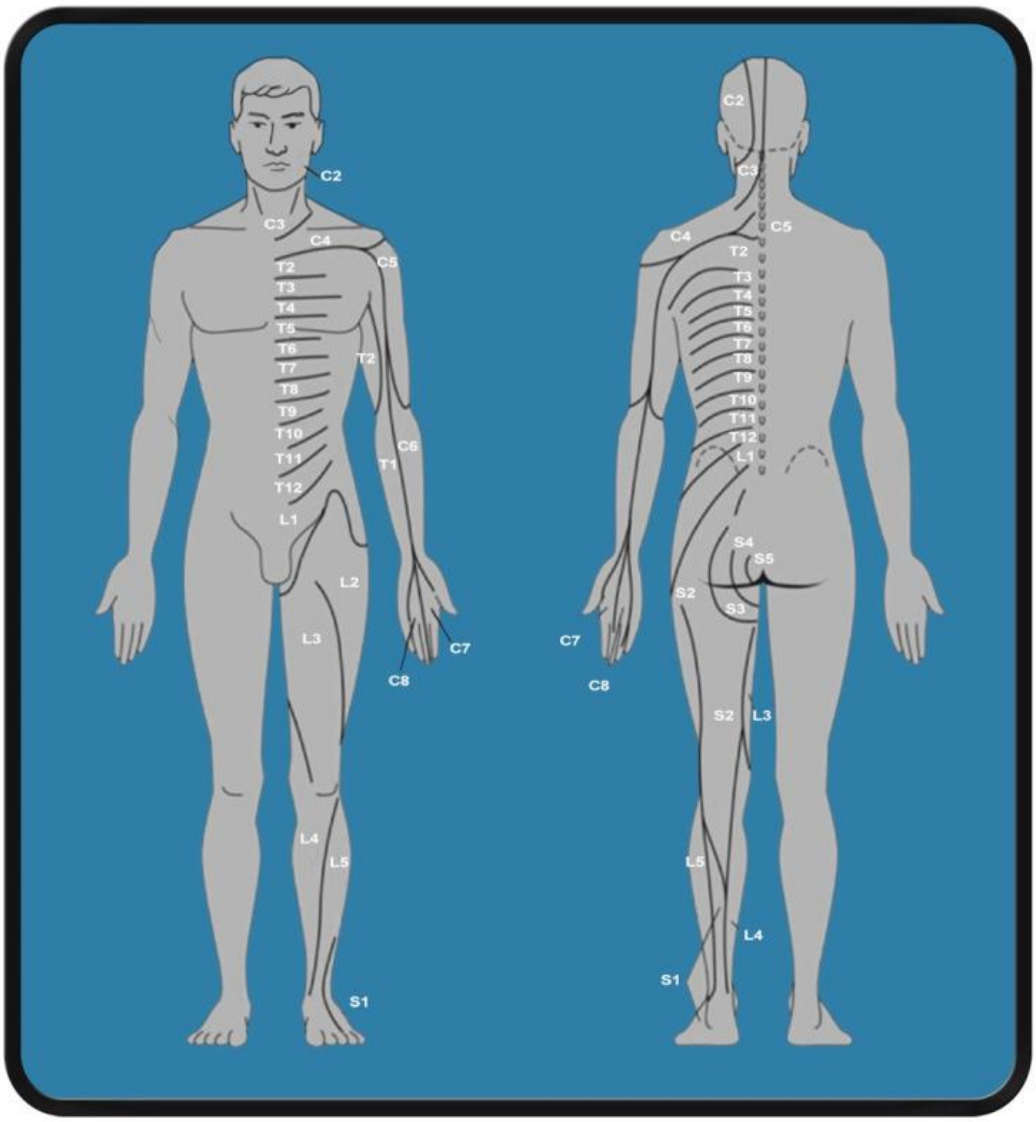
Looking at the below-reported mappings, inspired to Robert Maigne's ones, you will notice that every vertebral segment is connected to a specific body area. Pay attention to it, as while you will be operating, you will realize how specific and surprising are their connections. At my beginning, but also nowadays, the specificity of this pain mapping was looking absurd to me.
You will need these mappings at the beginning to understand how to proceed, but later you will notice that your clinic reasoning will be almost automatic and you won't need it anymore.

PLEASE NOTE: To perform spinal manipulations that I teach in this course for a therapeutic purpose, always receive the patient having instrumental exams (X-RAYS, MRI, CAT) and a diagnosis. Moreover, always refer to the spinal processes tests and to the pain mappings you can find below, manipulating the vertebral segments connected to the connected displayed pain area.

PAIN MAP



DERMATOME MAP



After manipulating the dysfunctioned vertebral segments, always remember to re-evaluate with the palpation muscular exam if the performed manipulation has released the muscular tension (reflected effect) that you previously detected. This is an important positive feedback which is instantly available after the manipulation and will help both you and the patient to evaluate the post-manipulation result. I suggest to perform the functional test to understand if your manipulative treatment has restored the normal spine movement both during and after the session to monitor its effectiveness.

My personal evaluative approach is inspired to the essential principle of Karel Lewit's functional approach, stating that:

"Our muscular-skeletal system informs us about a dysfunction through pain and tension that it shows"

A dysfunction or a dysfunctional complex can be recognized then by:

- **Muscular tension**
- **Hypo-mobile joint**
- **Skin and muscular band thickness**

PRACTICAL PART

The manipulations you will learn will be a mix of manual techniques inspired to the osteopathic and chiropractic theories that I re-elaborated with experience to make their execution easier and more efficient.

Before performing any manipulation, make sure that the patient has a diagnosis and that any contraindication to the manipulation does NOT exist.

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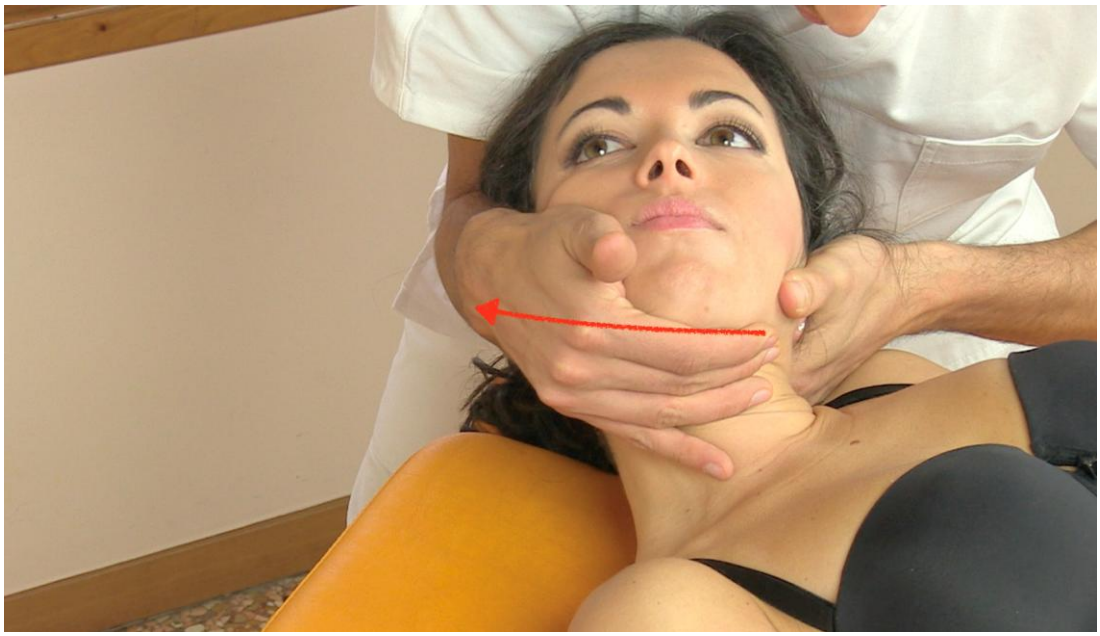
High Cervical Manipulation C1 - C2 / C2 - C3

- Patient's position: Supine
- Therapist's position: standing, behind positioned, in the counter-lateral part to the dysfunction.
- Grab 1 Chin-Hold: The counter-lateral hand is positioned on the posterior arch of the atlas (or on the articular pillars of C1-C2/C2-C3), while the other hand wraps the chin from below.
- Grab 2: both the hands are positioned on the posterior arch of the atlas (or on the articular pillars of C1-C2/C2-C3).
- Test and High Cervical Manipulation
- C1 - C2 / C2- C3
- Post-manipulative Test (functional)

Medium Cervical Manipulation C3 - C4 / C4 - C5

- Patient's position: Supine
- Therapist's position: standing, behind positioned, in the counter-lateral part to the dysfunction.
- Grab 1 Chin-Hold: the counter-lateral hand is positioned on the articular pillars of C3-C4-C5 while the other wraps the chin from below.
- Grab 2: both the hands are positioned on the articular pillars of C3-C4-C5
- Test and Medium Cervical Manipulation C3 - C4 / C4 - C5
- Post-manipulative Test (functional)

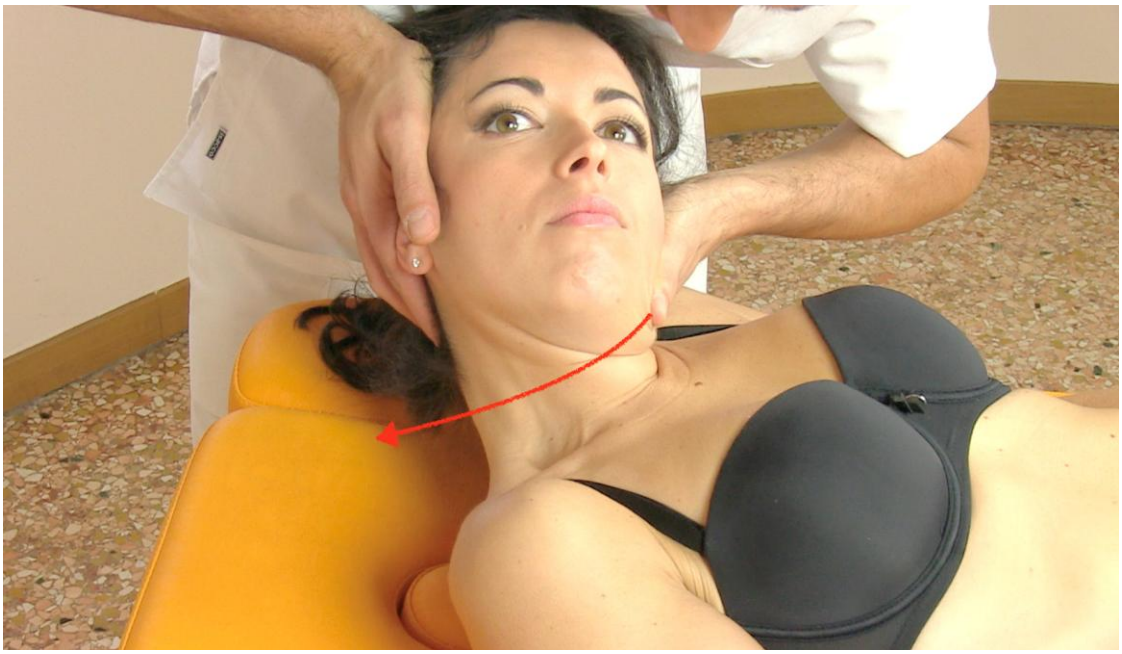


Variation

- Patient's position: sitting
- Therapist's position: Positioned in the ipsilateral part to the dysfunction.
- Grab: the counter-lateral hand is positioned on the articular pillars of C3-C4-C5 while the other, while the other is positioned like a V, with the thumb over the chin and the index on the temple.
- Test and Medium Cervical Manipulation C3 - C4 / C4 - C5
- Post-manipulative Test (functional)

Low Cervical Manipulation C5 – C6 / C6 – C7

- Patient's position: Supine
- Therapist's position: standing, behind positioned, in the counter-lateral part to the dysfunction.
- Grab 1 Chin-Hold: the counter-lateral hand is positioned on the articular pillars of C5-C6 C6-C7 while the other wraps the chin from below.
- Grab 2: both the hands are positioned on the articular pillars of C5-C6 C6-C7
- Test and Low Cervical Manipulation C3 - C4 / C4 - C5.
- Post-manipulative Test (functional)



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Cervical Thoracic Manipulation T1 - T3

(Semi-indirect unlocking Manipulation)

- Patient's position: prone
- Therapist's position: ipsilateral to dysfunction
- Grab: The inferior's hand thumb blocks laterally the T1 spine of a vertebra; the other hand bears up on the temporal bone or oh the forehead with the fingers towards the head, pushing in bend laterally and not rotating.
- Test and Cervical Thoracic Manipulation T1-T3
- Post-manipulative Test (functional)

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Cervical Thoracic Manipulation C7 - T1

(Unlocking long leverage Manipulation)

- Patient's position: sitting, with hands crossed behind the head.
- Therapist's position: sitting behind the patient
- Grab: Both the hands grab patient's wrists
- Test and Cervical Thoracic Manipulation C7-T1
- Post-manipulative Test (functional)
- Variation: patient and therapist standing

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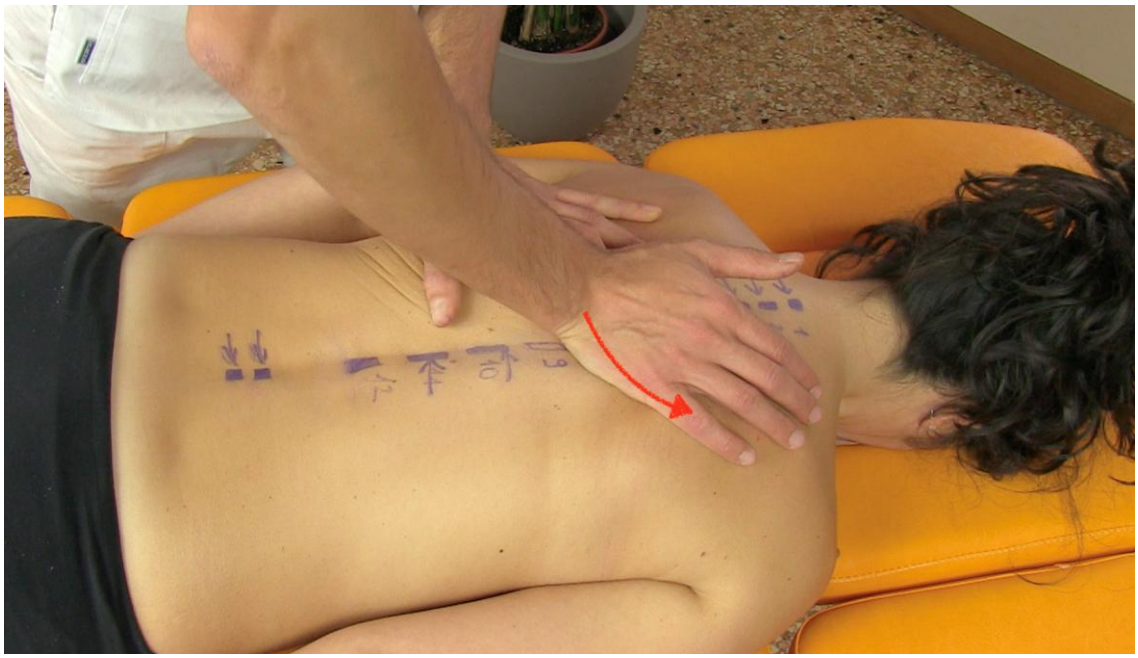
Direct Dorsal Manipulation T1-T12

- Patient's position: prone
- Therapist's position: ipsilateral to dysfunction
- Grab: One hand with index and middle finger on the spine of the vertebra, while the other hand helps as a support above, bearing up on the furrow between the Thenar and Hypothenar
- Test and Direct Dorsal Manipulation T1-T12
- Post-manipulative Test (functional/muscular palpation)



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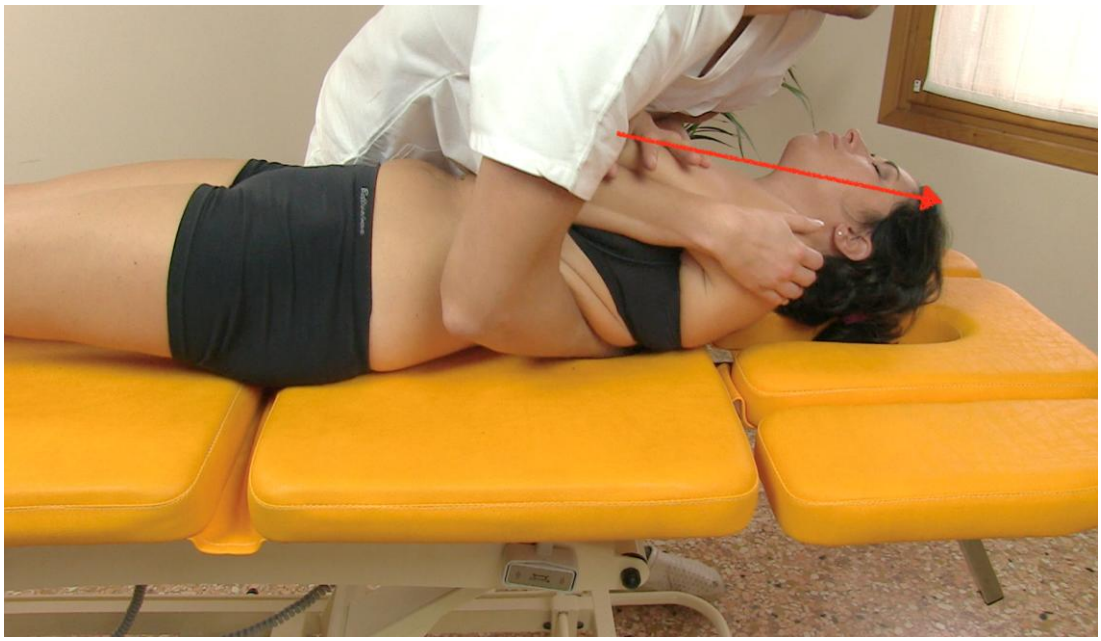
Thoracic Manipulation Dog Technique T6 - T7

- Patient's position: Supine with arms crossed and hands on the shoulders.
- Therapist's position: ipsilateral to the rotation deficit.
- Grab: One hand bearing up bearing up on the furrow between the Thenar and Hypothenar on the spine of vertebrae T6 and T7. The other hand on patient's elbows.
- Test and Thoracic Manipulation Dog Technique T6 - T7
- Post-manipulative Test (functional-rotational)



Variation: sitting

- Patient's position: Supine with arms crossed and hands on the shoulders.
- Therapist's position: Behind the patient.
- Grab: Both the hands grab patient's elbows
- Test and Thoracic Manipulation Dog Technique T6 - T7
- Post-manipulative Test (functional-rotational)

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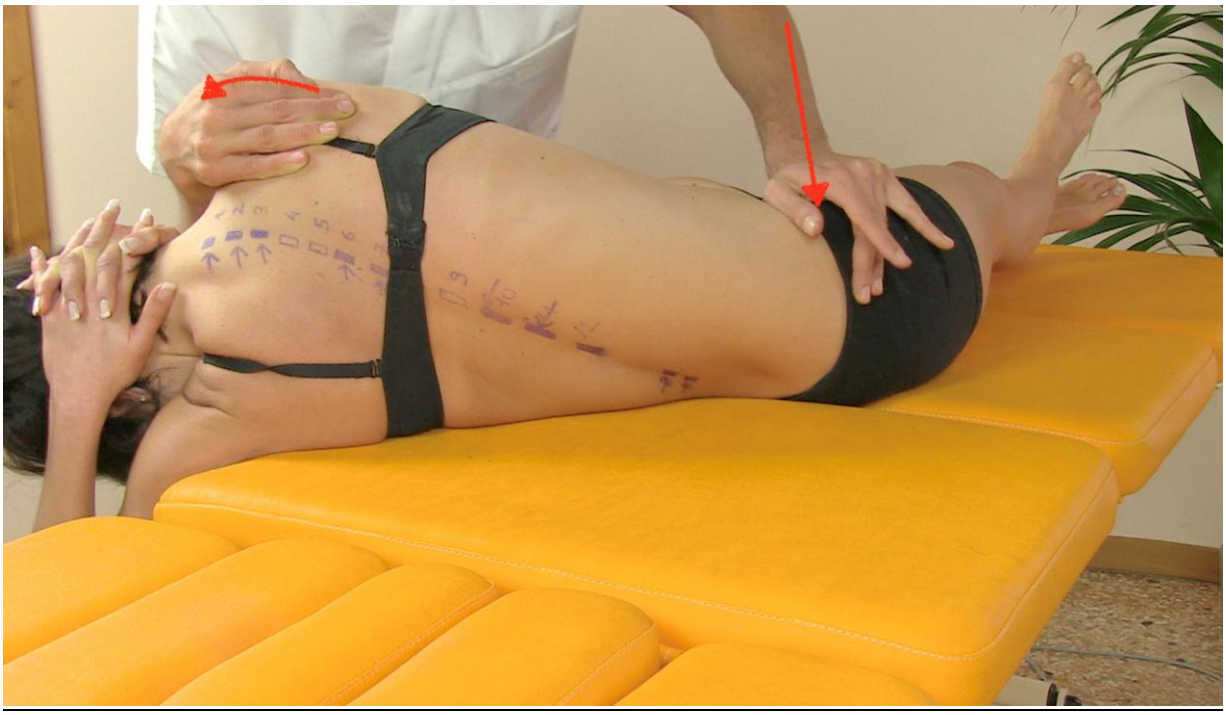
Dorsal-Lumbar Manipulation

(Unlocking long leverage Manipulation)

The test on the spinal processes has to be positive by the side of the crossed leg.

- Patient's position: Supine with hands crossed behind the head.
- Therapist's position: Counter-lateral to the dysfunction.
- Grab: A "stability hand" on the Anterior-superior Iliac spine and the other under the counter-lateral shoulder.
- Test and Dorsal-Lumbar manipulation
- Post-manipulative test (functional and muscular palpation).



Dorsal-Lumbar Manipulation

(Unlocking short leverage Manipulation)

- Patient's position: sitting with hands crossed behind the back.
- Therapist's position: Standing behind the patient
- Grab: Both the hands cross in front of the patient's abdomen
- Test and Dorsal-lumbar short leverage manipulation
- Post-manipulative test (functional)

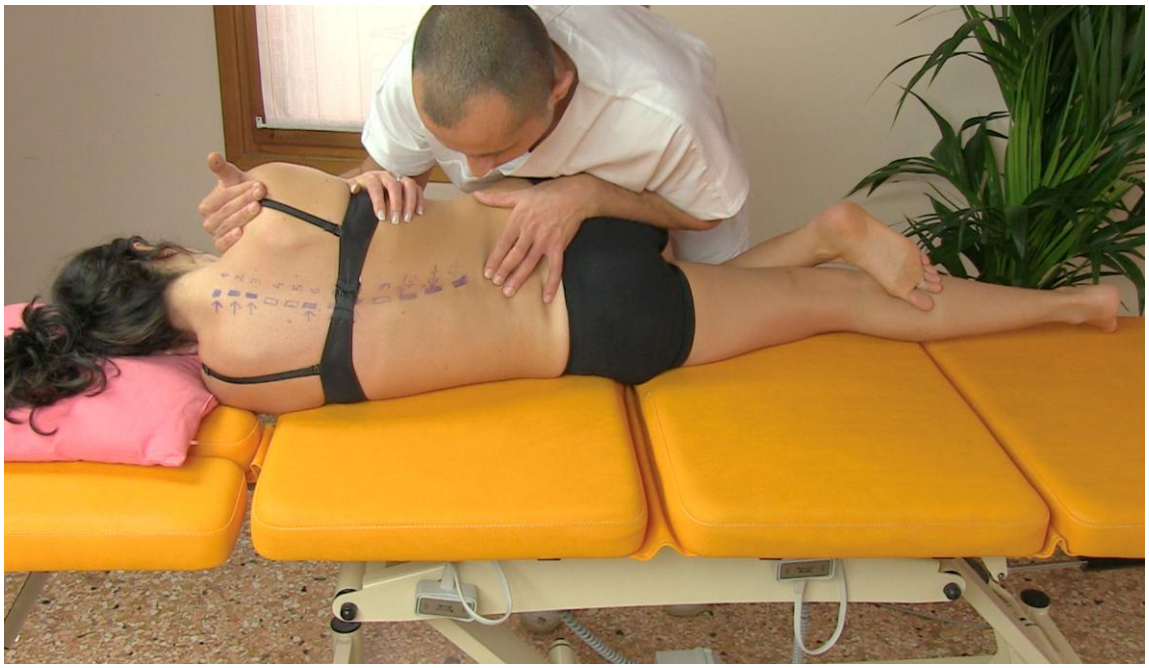
Lumbar direct short leverage Manipulation L1 - L5

- Patient's position: prone with a pillow under the abdomen
- Therapist's position: ipsilateral to the dysfunction
- Grab: one hand with index and middle finger on the spine of the vertebra and the other hand helping as a support bearing up on the furrow between the Thenar and Hypothenar
- Test and e direct short leverage Manipulation L1 - L5
- Post-manipulative test (muscular palpation)

Lumbar long leverage Manipulation L1 - L5 (S.I.)

(Lumbar Roll)

- Patient's position: Laterally resting with a pillow under the head
- Therapist's position: in front of the patient
- Grab: one hand on the frontal shoulder and the other on the back with index and middle finger touching the spines of vertebrae or on the S.I.
- Test and long leverage Manipulation L1- L5 (S.I.)
- Post-manipulative test (muscular palpation)



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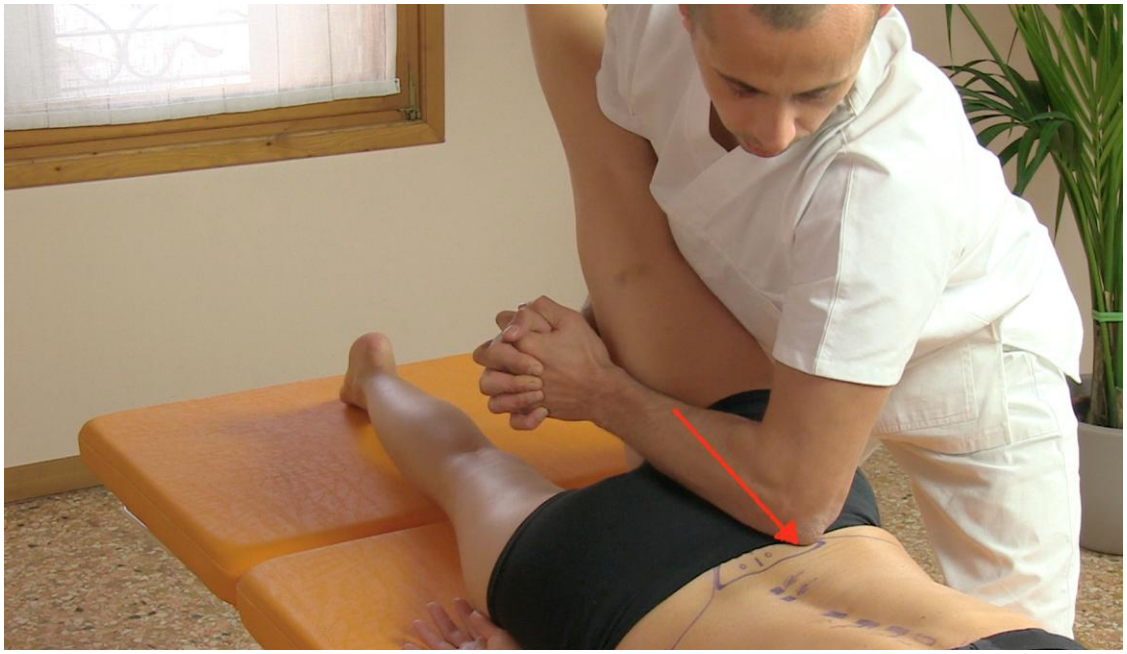
Sacrum-Iliac manipulation (posteriorization)

(Modified Chicago Technique)

- Patient's position: Supine with hands crossed behind the head
- Therapist's position: counter-lateral to the dysfunction
- Grab: One "stability hand" on the Anterior-superior Iliac Spine and the other under the shoulder
- Test and Sacrum-Iliac manipulation (Modified Chicago Technique)
- Post-manipulative test (visual – fake dysmetria correction)

Sacrum-Iliac manipulation (anteriorization)

- Patient's position: prone with a pillow under the abdomen
- Therapist's position: ipsilateral to dysfunction
- Grab: the manipulating elbow is positioned on the Posterior-superior Iliac Spine and the other hand wraps the thigh from below until the two hands touch
- Test and Sacrum-Iliac manipulation (anteriorization)
- Post-manipulative test (visual – fake dysmetria correction)



Sacrum manipulation for Anterolysthesis and sacrum-anteriorization

Other Contraindications: obesity, pregnancy, hip prosthesis or severe coaxarthrosis

- Patient's position: supine with knees flexed to breast
- Therapist's position: by the side
- Grab: one hand holds the sacrum and the other over the knees to perform the drop-down
- Manipulation for Anterolysthesis and sacrum-anteriorization
- Post-manipulative test (functional)

Frequent Questions

You can find here some questions that your patients or you may ask in this moment:

Q. – **Is the spinal manipulative treatment dangerous?**
A. – Absolutely not, obviously the patient's diagnosis and our careful initial evaluation are very important to exclude all the absolute contraindications and to evaluate the relative ones before manipulating.
Help the healing and homoeostasis through manipulations is in my opinion the best and safest treatment to recoup and maintaining our patients' health.

Q. – Your patient has already undergone spinal manipulations sessions without any positive result. Can you help him/her anyway?

A. – It's almost sure! For the following two reasons:
- First: the manipulative techniques and the clinical reasoning that I teach are inspired to my studies and they are based on my experience that has brought me to reach extraordinary results so far.

- Second reason consists of your will to help your patients and so to investigate and give always your all, probably unlike another professional did.

One thing I learned manipulating every day is that your energy is powerful, such as your thoughts and especially your will. I am Quantum medicine fan, and that science teaches a lot about this.

Q. – **How many sessions should I do before reaching results?**
A. – I give you a piece of advice I would have appreciated a lot when I began. If a patient asks you this question keep the evaluation quite high even if you think you need 2-3 sessions, answer "let's see how he/she reacts to the initial treatments" or increase your estimation of a couple of sessions.

I don't say that for a commercial reason at all, but I suggest to answer like that because normally patients who are told the exact sessions number tend to have worst or later results.

If you will take less time, it will be a great success for you (and your patient) will be both happy, so keep the evaluation high even if according to my experience I can say that on average you'll be able to solve the most of the muscular-skeletal problems within 3-6 sessions, especially if you will learn also from my course about peripheral manipulations.

Q. – If the patient has undergone a surgical operation to the back for a Discal Hernia, can I manipulate him/her?

A. – Yes! (always having a diagnosis). For sure you'll have to carefully evaluate the presence of plates or screws, but after an accurate anamnesis about possible rebounds as often happens in a year (sometimes less) you will be able to help that patient a lot and according to my direct experience you will probably avoid him/her a further surgical operation.

Conclusions

Congratulations for deciding to learn my spinal manipulations' techniques; I wish and I'm sure that my teaching will make the difference.

The main scope of this course is to make your professional life and your patients' health better.

I suggest you to attend also my course about peripheral manipulations, which will complete your treatments, giving you a plus in the treatment of many painful muscular-skeletal conditions.

I wish you the greatest success as a professional and I am happy for being part of your professional skills training!

I wish you a good work!

Marco Aruffo

Spinal Manipulations

Disclaimer / Legal notes

This video-course gives a general view of the manipulative techniques for the treatment of all the spine, intended in its complex as an osteo-articular system and its respective soft tissues. In no way this course wants to substitute a medical diagnose which remains always the primary reference for every pathology and patient's disturb. Based on this statement, "Marco Aruffo declines every kind of responsibility relates to the contents of the video-course Spinal Manipulations" and leaves to the finale user of this material the respect of the ruling laws about this matter. Part if the used pictures are property of ManiEsperte.it. For all the anatomy pictures, free images available on Google have been used.

All the information of this video-course must not be used as substitutions for medical consultations, professional evaluations and/or medical therapies, as these are generic information, not personalized.

Also remember that pathologies and dysfunctions diagnoses are strictly a medical competence ambit.

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