What are Functional Integrated Therapies™

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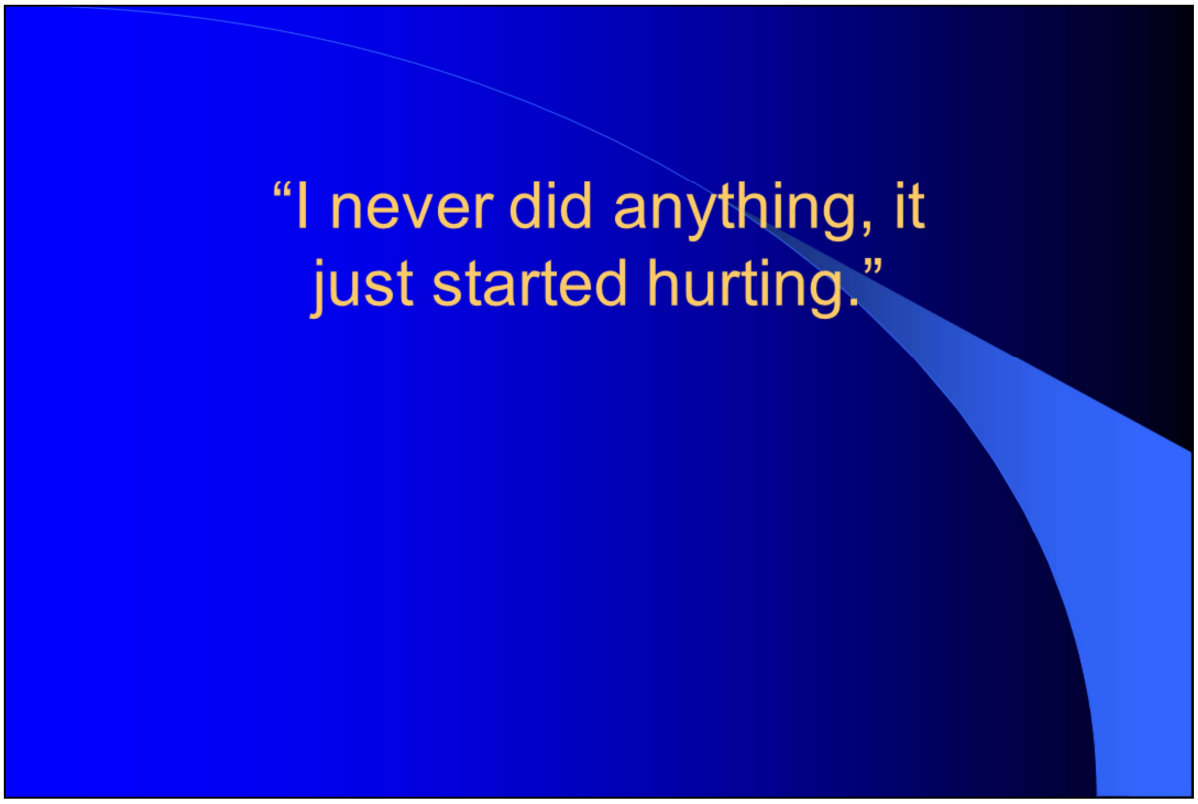
Lately people hear this term a lot, but what does it mean? Complementary and alternative medicine is defined as medical products such as supplements and practices such as massage and acupuncture that are not part of standard medical care.



This is something I hear all the time. The reason is repetitive stress.

An Old Philosophy

"A cure of the part should not be attempted without treatment of the whole."

Plato

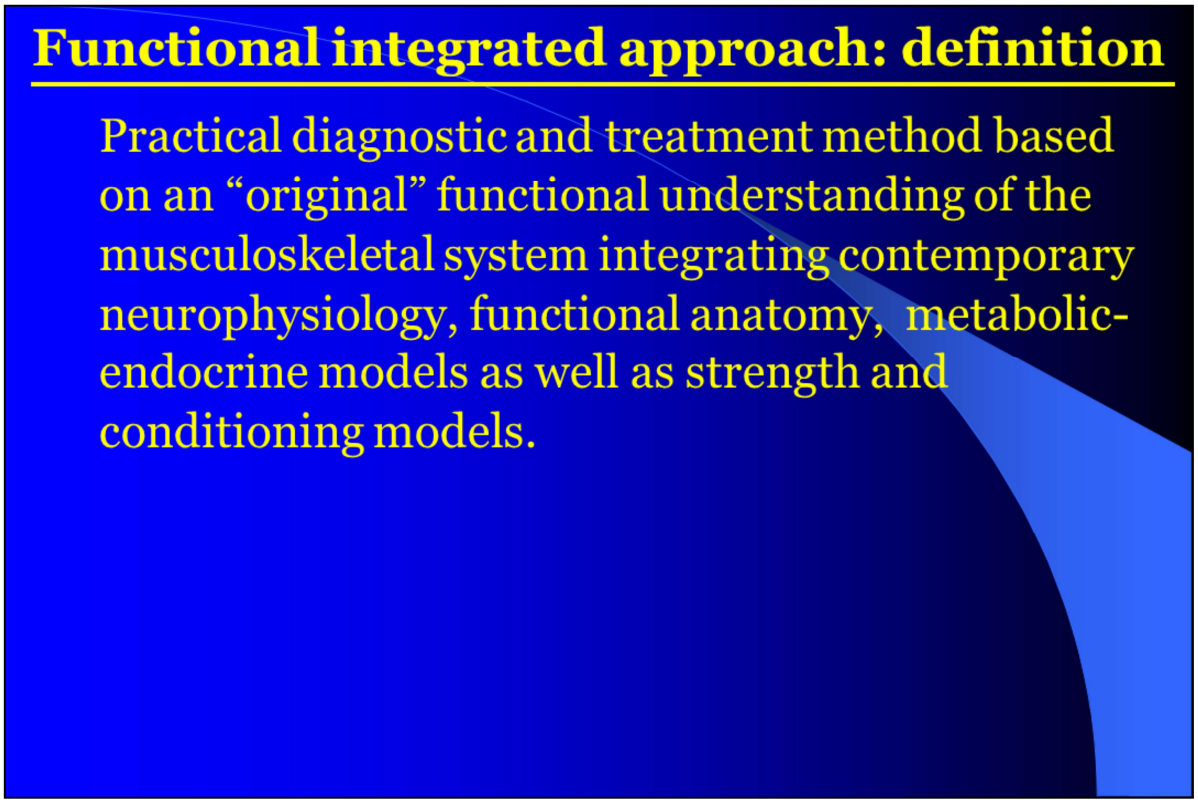
•Really, this is not a new system, it is pretty old. Plato said you can't cure a part without understanding the whole. This is what we are trying to do with our philosophy.

•Many providers treat the site of pain. Most often the site of pain is only the symptom and not the root of the problem. For example, a disc herniation may create pain down the leg. If you treat the leg pain it will not help because the disc is the root of the pain.

•Think and assess globally, then treat regionally and locally. This is very important because thinking globally helps you with the prognosis. You will find in many cases that a weakness in one area can exhibit symptoms in another area.

•You may not be able to correct some of the findings. It will help you to determine the likelihood of improvement, the length of time – the natural history of the disease. In some cases accommodating the dysfunction is all you can do.

•This is the goal of our system.

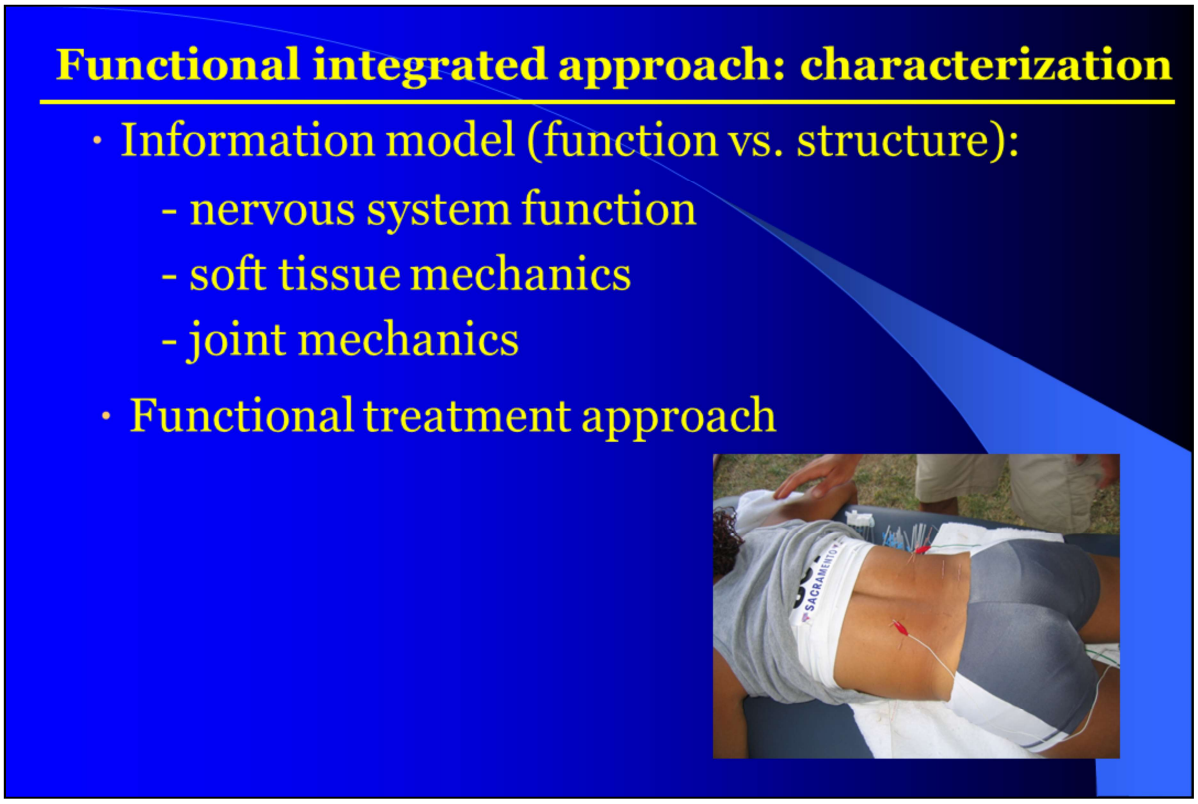


•In terms of helping people, helping athletes, we think we can do a lot more then what is usually provided with this functional approach. This is the philosophical part of what we do.

•This is a practical, thinking system and a step by step approach. Basically, what it does is put together our contemporary knowledge of everything from anatomy, biomechanics, physiology, pathophysiology, etc.

•Also, as you see here, there are metabolic endocrine models which are important.

•Strength and conditioning – very important. Once you restore normal function, how do you promote optimal development - this is what you do.



•In terms of understanding the philosophy, again, what we do is an information model. Basically, we are not structuralists or mechanist in approach even though we look at the mechanical part. We are more, with our computer age, a computer and information system. We look at relationships between the parts of the body.

•The main differences between a human body and say a table, bed or a bridge is the human body has an information system. It is an imperfect information system to indicate that to the central system unit , the brain, what is the state of the relationship between elements. Now I said imperfect, because the system only tells your conscious part when something is wrong or has been wrong for a long time.

•This is important to understand because if you only go by the information, then you will not be able to assess precisely what is going on.

•What is going on is going to have to come from your hands, your observation, the history of the behavior of that individual- this is the first important concept.

•The second important concept is that the body is a bio material. Meaning it is alive. It is in constant turnover, constant renewal. A bridge is a bridge - the molecule it was made of is exactly the same.

•So we deal with an information system that is imperfect. Then we deal with a structural system that is able to change. If we did not have those 2 conditions, we would not be able to do what we do.

•To make this simple, we look at specific parts of that system such as the information system (the nervous system which is the main part of this system).

•Then we look at the structural part which is more accessible to the hands - the soft tissue as well as the mobile parts which are the joints.

•This is all done through the functional stand point. We look at that not from an anatomy book - this

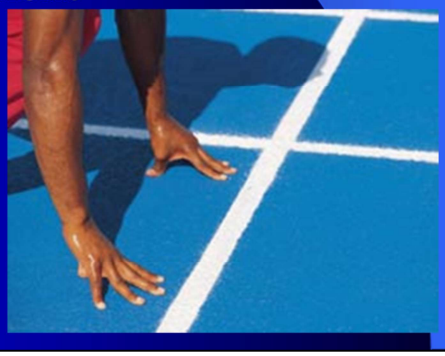
has to look like this.

•We look at - What do you want to do with your body and what is it that you are unable to do. You have to look at what they want to do. That is why someone who wants to run is not evaluated the same way as someone who wants to walk.

•Functional approach means you first and foremost consider what is the system doing or what does it want to do.

Functional integrated approach: the process

- Clinical retrieval of functional and structural information
- Functional analysis of information (diagnosis)
- Selection of functional therapeutic goals, treatment targets, and outcome measures
- Functional integrated treatment
- Functional retraining



•This process is simple but not easy and it has steps. The first one is of course retrieve enough information to understand what is going on.

•Next, you analyze function of that information.

•Then you are going to be able to establish a hypothesis or a diagnosis. Our diagnosis is not important. We don't care if you call it Achilles tendonitis.

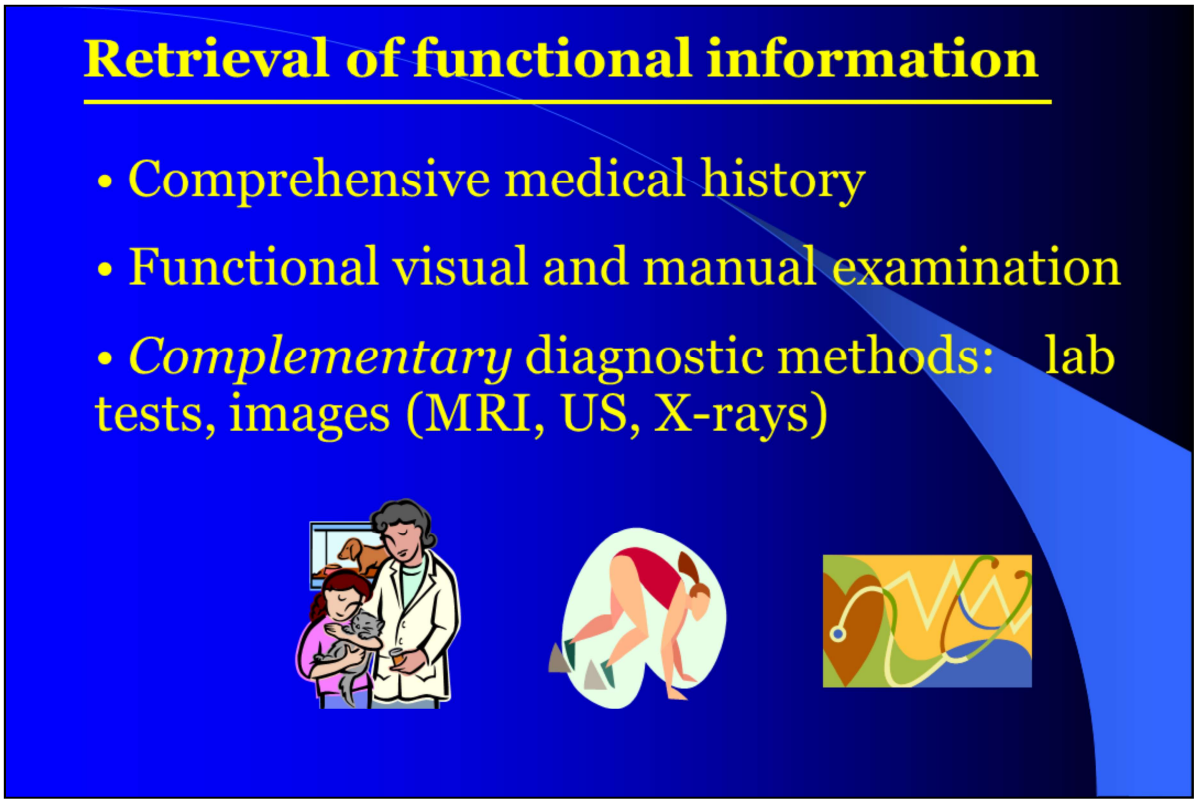
•All we care about is what is the dysfunction and what are the contributing factors that we find. And what are the failed adaptations;.

•We then select out goals based on those findings.

•Of course we like to use functional outcome measures to measure the success or failure of our intervention.

•And this involves the selection of functional tools that we will discuss.

•This is followed by functional retraining.



•The key with the retrieval of information is don't skip any steps. It is as simple as that.

•Because it can be very tempting to right away jump and go to the local problem without thinking globally.

•For example, the patient comes in limping, and obviously there is an achilles tendon that is inflamed . However, in our experience, you are going to miss a lot of good information somewhere in your comprehensive medical history.

•The part of this that may be new to some of you is this functional visual and manual examination. I must reiterate that functional is not to just touch the patient. It is to look at how the patient moves. So you need an appropriate environment to do that. Sometimes, you might need to go outside.

•Then this 3rd step, should complement your examination, not as the primary thing because even in the presence of structural damage, still that doesn't prove that that is the problem.

•Obviously, structural damage is a reflection of a functional problem. But understand that the body might have adapted to this structural lesion perfectly.

•The solution is not to change the structure, the solution is to improve the adaptability. This is a concept that we will insist.

•Since the information system is imperfect, it is not enough to tell you what is wrong. If it was, everybody would make beautiful diagnosis.

•Pain is one of the most difficult things to interpret because it is so general, so vague, so imperfect.

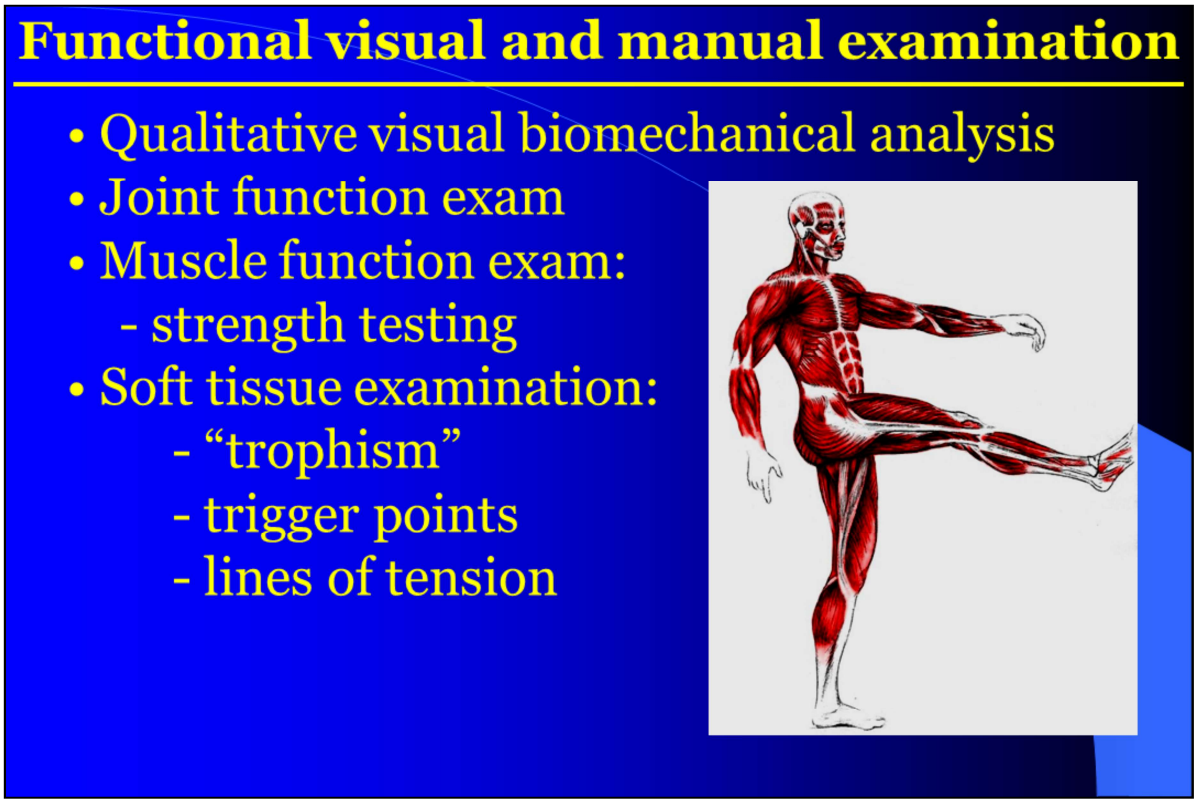
•Behavior of condition over time tells us more about the nature of that possible problem.

•Previous treatment and injuries tell us what happen before that. For example, now my achilles hurts but last year I injured my hamstring but that's fine, it healed. Oh yea, and you don't think that your body didn't change after that?

•People ask, "do you think this is related?" no, I don't think… I know. The human body is a unit.

•Scars from surgery or soft tissue trauma are important because of continuous tensional system and if you interfere with that system, there will be severe mechanical repercussions

•Scars have far reaching repercussions due to changes in line of tensions causing changes in function.



•With soft tissue, there are 3 things apart from looking at global muscle function. You want to know how well nourished those tissues are. And this can be detected by how good they feel.

•Are they pliable? Are they excessively fibrotic? Are they leathery? That is going to be done by palpation.

•Then you want to know are there areas that are behaving abnormally in a neurologically abnormal manner. These are so called trigger points. Areas which are tender and/or fibrotic.

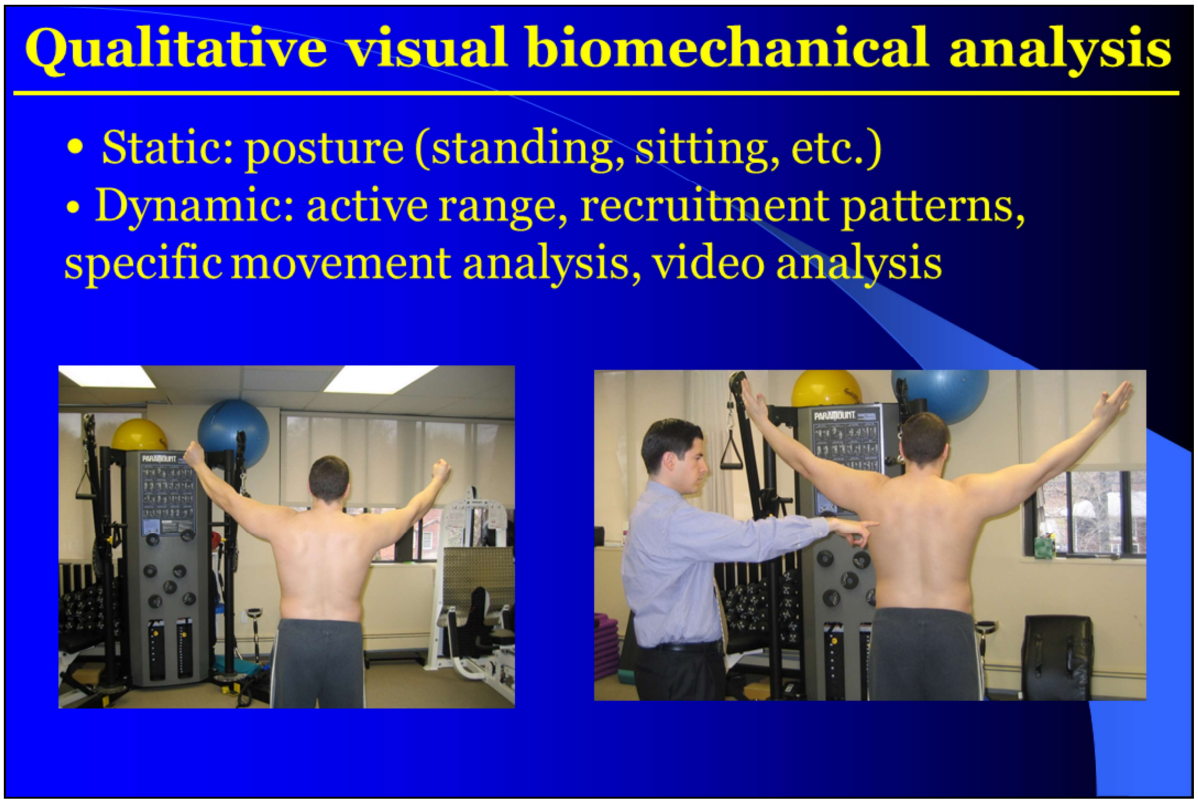
•Travell and Simon do a terrific job explaining this model.

•Then there is another subtle level called lines of tension which is going to give you information about the interaction between the force of gravity and that specific musculoskeletal system. And the value of understanding the lines of tension and the value of addressing the areas of the lines of tension is equivalent to the value of ironing your shirt.

• (SHOW EXAMPLE WITH SHIRT) If I have an area on my shirt that is restricting the normal flow of the fibers, you can see immediately that lines of tension are generated that produce the tissue to pull in different areas. The key is to understand that there are specific key parts where there are areas of high friction where if you are able to release, those areas of lines of tension will normalize and then the whole tissue sets in a proper manner.

•This concept of lines of tension is critical because the main question what do I treat is going to be answered by your ability to find those primary spots. Because specificity is key. And that is the difference between someone who understands the overall architecture of the soft tissue or someone who maybe has a tool foe soft tissue treatment but doesn't know how

to apply. And the greatest results occur when you are able to find those key areas.



•So here you look at posture statically as well as in a dynamic manner. Here you look at active range. You look at the excursion of the joints. You also look at how the muscles are activated, the recruitment patterns and how it happens in a specific movement analysis.

•So if you are dealing with a runner or say a jumper, you would ask them to repeat exactly the movement that causes the dysfunction or just to show us a series of movements that are involved in the routine of this persons performance. This would give you clues into the nature of the dysfunction.

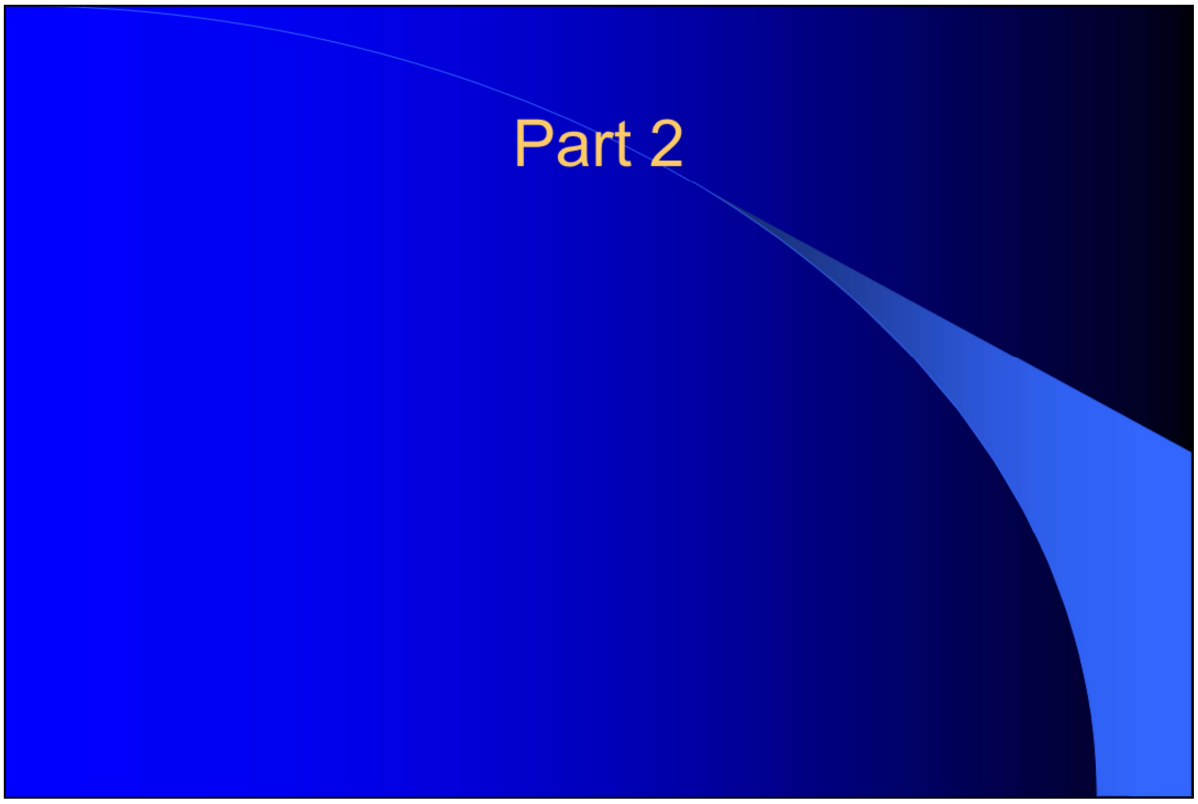
Joint function examination

- Active/passive range of motion, accessory movements, palpation

•Now in terms of joint function exam, we use mainly orthopedic tests. This involves active and passive range of motion because the joint is a mobile part.

•Also, we also look at accessory joint movements - what is the joint play that the capsule and ligaments allow. Is there any thickening of the capsule or anything you can precede with your hands? This is done through palpation.

•So muscle strength testing is important. Although it is called muscle strength, we are not testing its true strength rather the motor activation testing which would be more proper terminology. The goal is to detect motor inhibition. Any problem that involves pain or neuromuscular dysfunction is accompanied by some sort of motor inhibition. This would be one universal finding. This is the earliest symptom and the fastest you could change.


Part 2

Soft tissue examination

- Palpation (with or without motion) to assess tissue trophism and texture abnormalities
- Trigger point examination: tender nodules, taut bands, active movement restriction

•Palpation can be with or without motion to feel the tissue texture, the tissue trophism (nourishment) - so a gentle palpation

Soft Tissue Changes After Injury

- **Inflamed** — 24 hours to 72 hours
- "**Stringy**" muscles, lesions defined — 2 days to 2 weeks
- **Lumpy** tissue, palpable adhesions — 2 weeks to 3 months
- **Leathery** tissue, changes slowly — 3 months and *beyond*

Soft tissue examination

- Lines of tension: joint and soft tissue restricted range (active, passive, with motion palpation)

•The lines of tension are the general restrictions that the joint is going to show. For example, in this direction, there is a line of tension that has developed.

•Holding one are and mobilizing another is how we eliminate restricted movement.

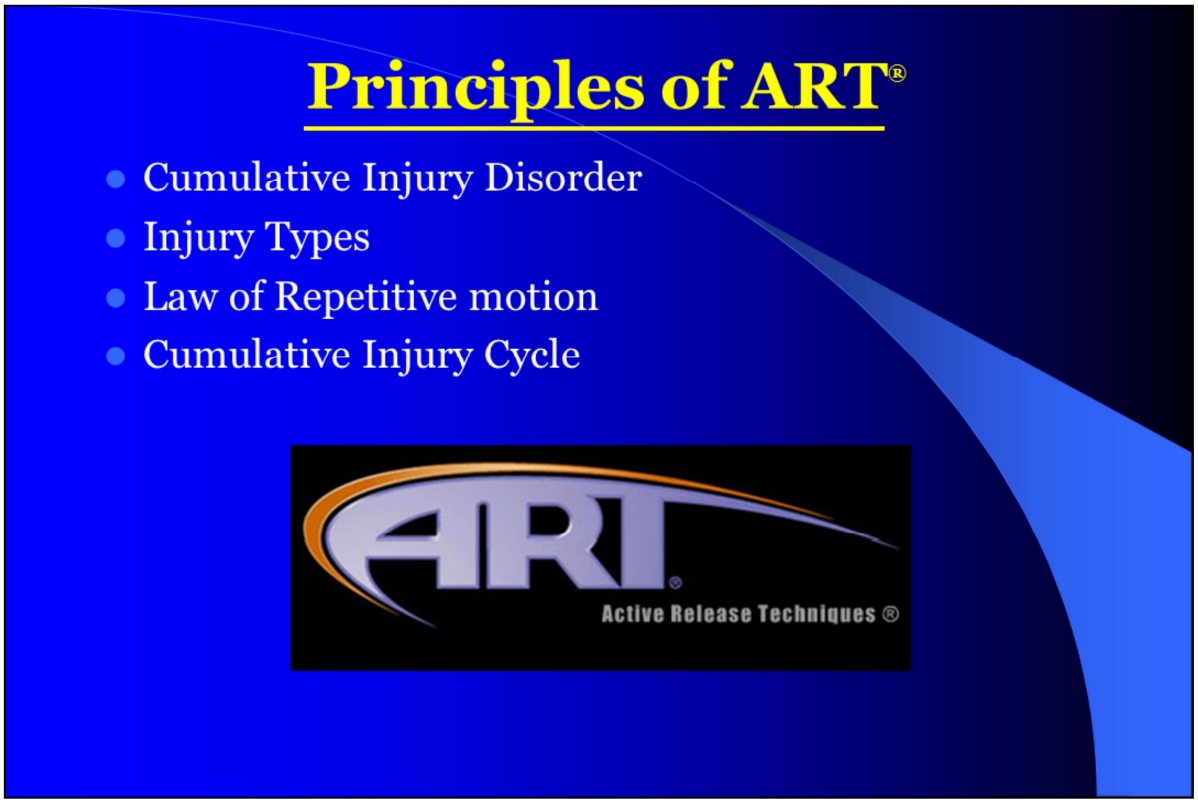
Specificity of Diagnosis and Treatment

- Four major areas of concern to improve outcomes:
  1. Tissue Texture
  2. Tissue Tension
  3. Tissue Movement
  4. Tissue Function

Soft tissue examination

- Motion palpation to identify high tension producing areas: scars, dystrophic areas, high friction zones, etc.

•What you do now is motion palpation simultaneously taking the joint through a range at the same time you palpate along the different main lines of tension. What we are looking for are areas of dystrophy, scars or high friction zones, inter muscular planes area muscle criss cross or overlap in different directions. This is where you want to go. You want to be efficient. The ability of you to find them will determine your success.



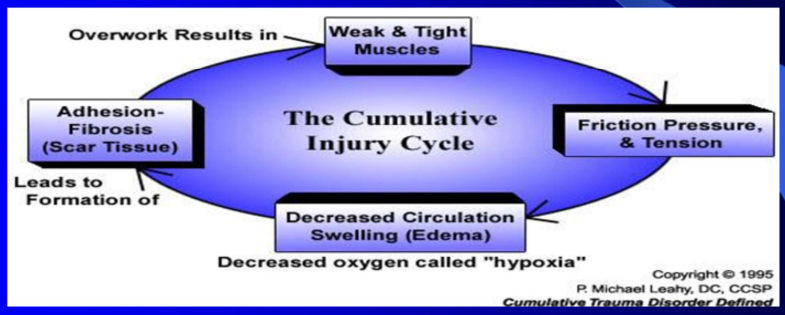
Active Release Technique is a method where providers use manual therapy to eliminate movement restrictions in soft tissue. It is much more advanced than massage, but does share similar principles.

Cumulative Injury Disorders

- Injuries to the:
  - blood vessels, ligaments, tendons, bones, fascia and nerves
- Actual trauma to the tissue not required for this disorder
- Results from:
  - an acute injury
  - repetitive injury
  - constant pressure/tension injury

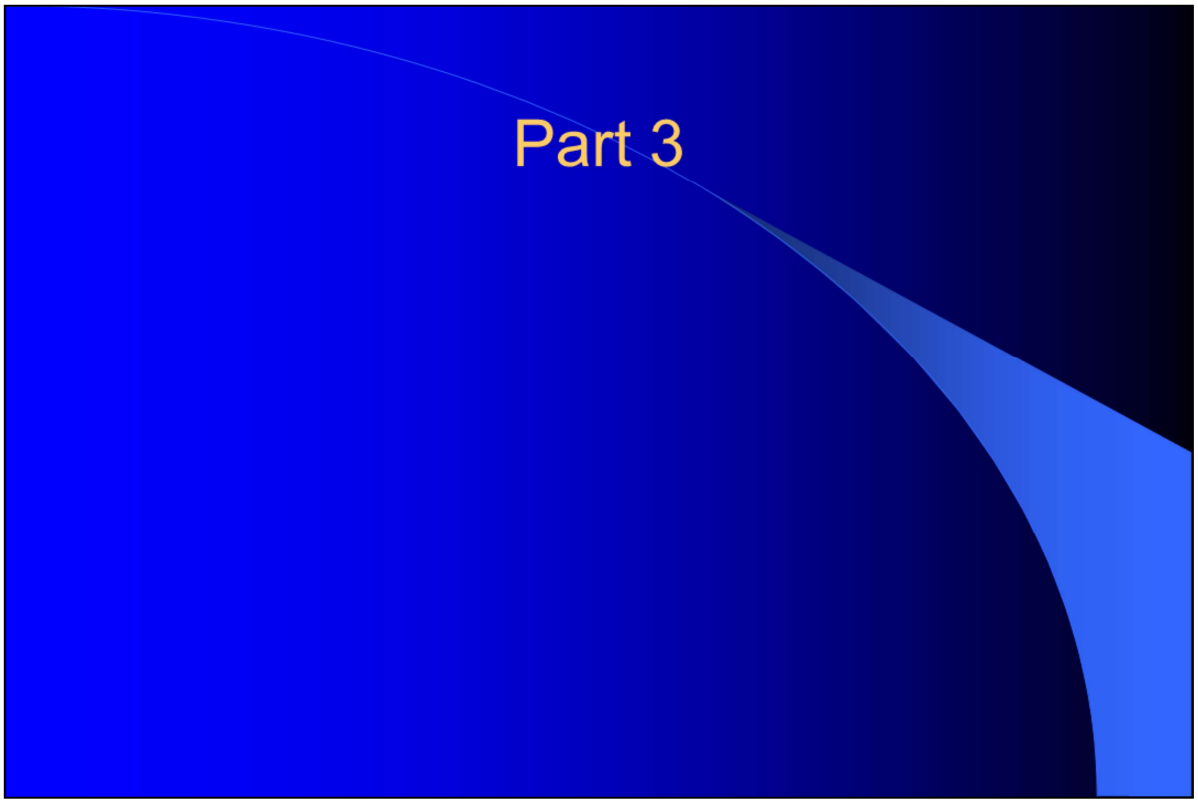
Cumulative Injury Cycle

- Repetitive Injury



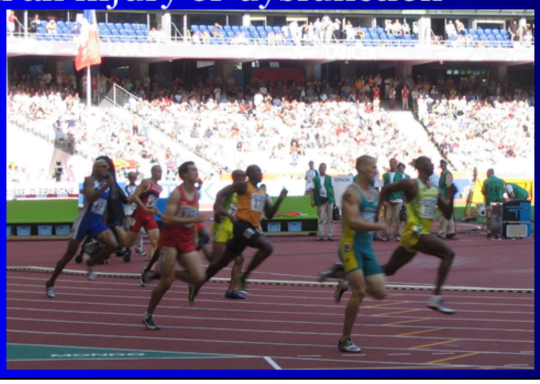
Cumulative Injury Cycle (con't)

- Chronic Injury
  - When a soft tissue injury forms adhesions and fibrosis and is not properly repaired or remodeled then the chronic injury cycle will perpetuate
  - As the downward spiral continues, symptoms and syndromes are produced


Part 3

Biomechanical Considerations

- Our body is made up of sets of continuous kinetic chains that keep our body balanced, enables us to move and compensates for disturbances in our center of gravity as we move.
- Typically, more than one muscle or structure is involved in an injury or dysfunction



The body is a series of levers. If one lever is disrupted it impacts the entire system.

Biomechanics (continued)

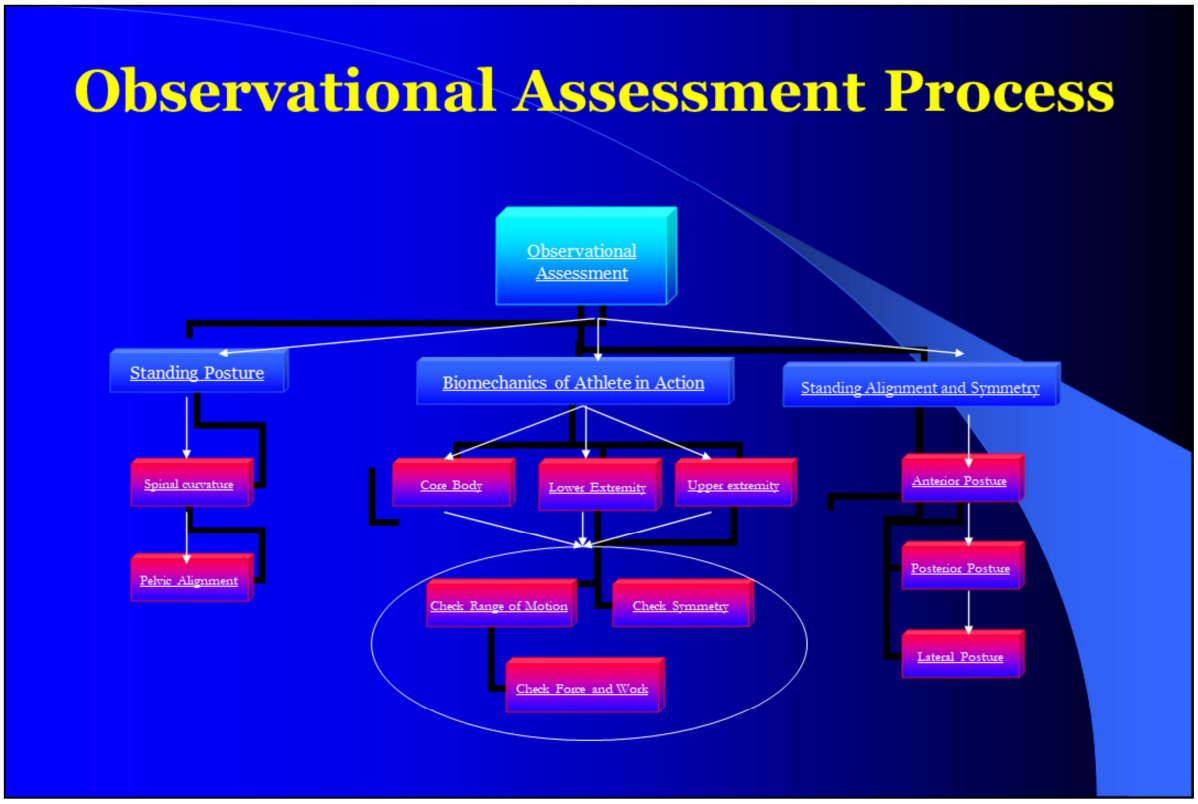
- Always evaluate initial site of injury
- Always evaluate kinetic chain structures above and below site of complaint
- Always check 360 degrees around affected areas due to agonist/antagonist relationships
- Always compare/contrast opposite side of body to assess symmetry

Biomechanical Observation

- Postural Dysfunctions
- Range-of-Motion
- Muscular Imbalances
- Tightness of Muscles
- Symmetry of Motion
- Speed of Acceleration/Deceleration
- Effort required to carry out the movement

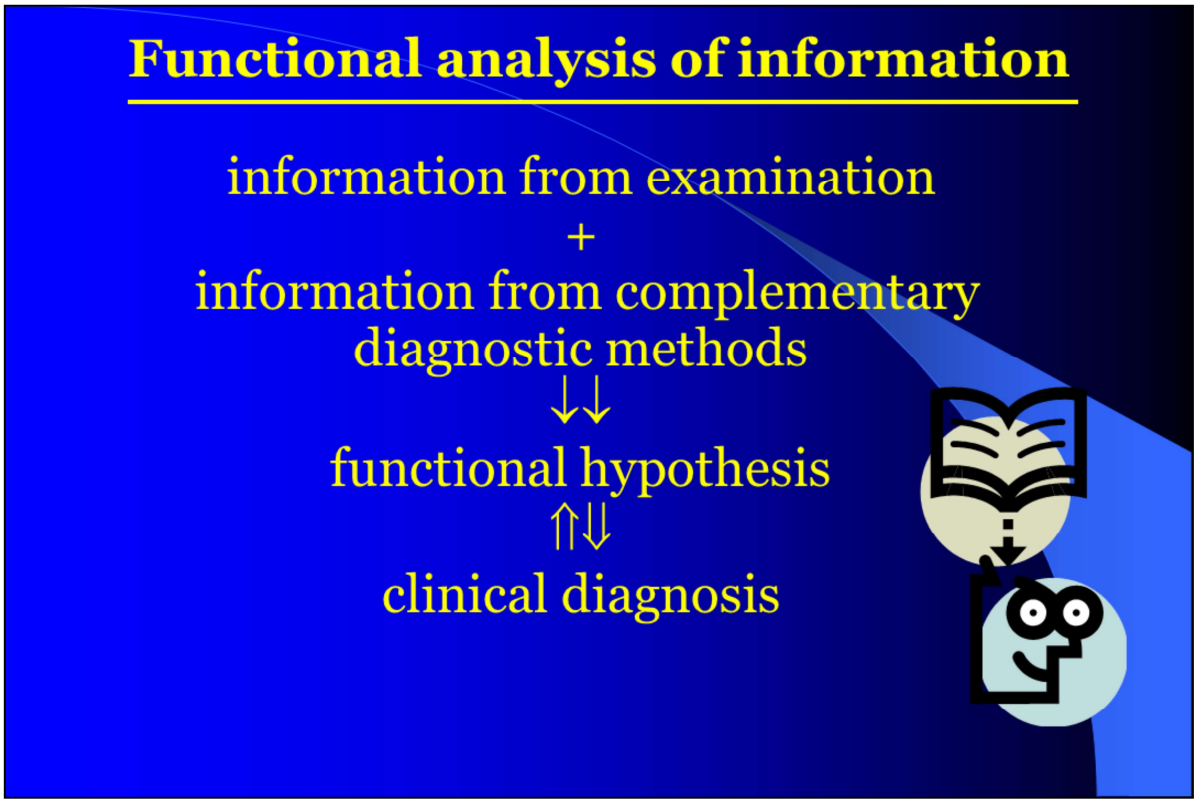
When watching an athlete move we can identify any compensation patterns. Recording an athlete makes evaluating them easier because you can slow the video and look from many angles.

Understanding how the body is suppose to function will give the provider the ability to asses each of the listed bullets and determine where a deficit may be.



. Providers observe patients standing still and moving to see that proper postural alignment is maintained through the gait cycle.

Providers must observe the entire body from the front, back and side to be sure any dysfunctions are identified.



•What you do is to construct a function hypothesis. It will always be a hypothesis even in the presence of a positive MRI … it doesn't matter until you test it. Because people can have different degrees of structural damage and still not be functionally impaired.

Functional integrated approach: the process

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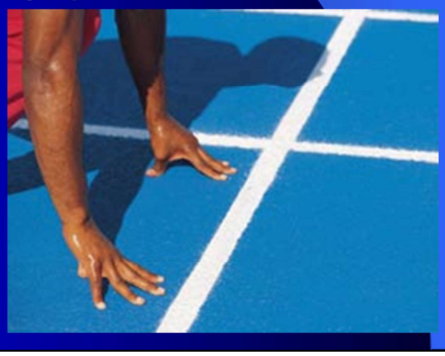


•Once all necessary information has been gathered the provider can analyze it and choose the best approach.

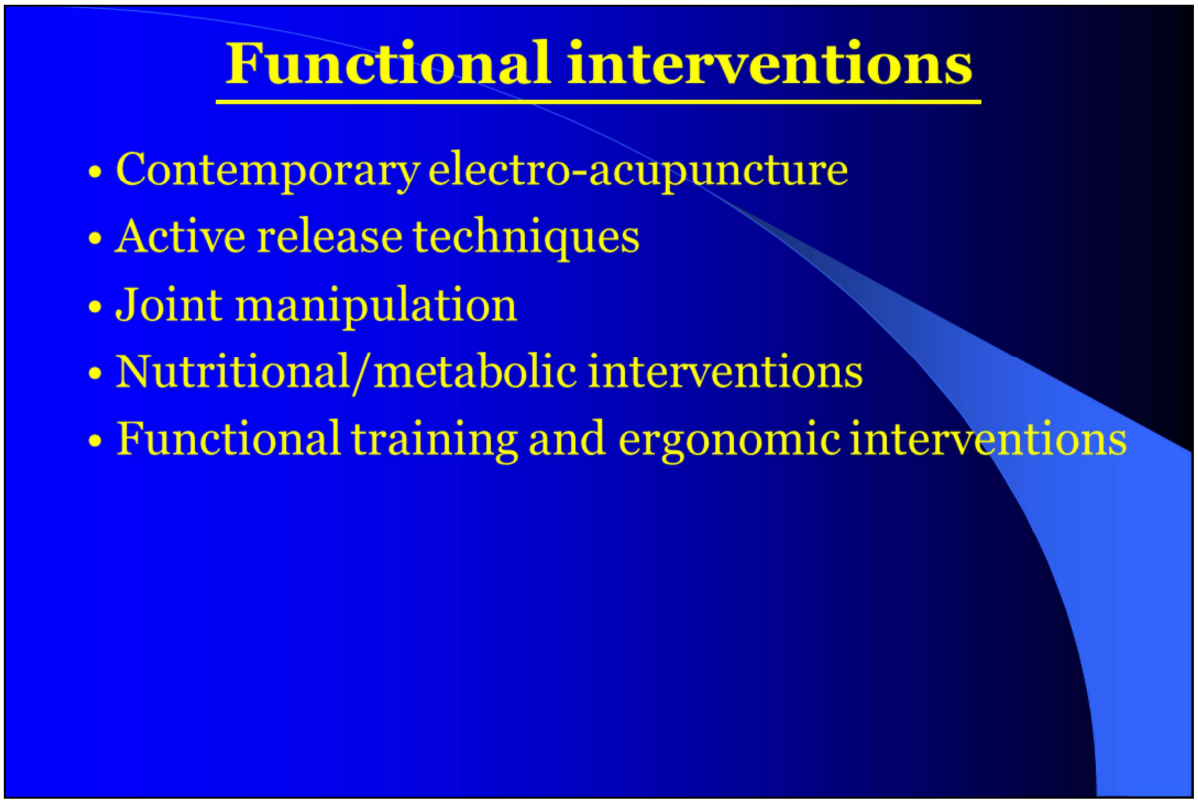
•Integrating soft tissue, acupuncture and movement therapies into the patient's program is crucial for long term success.

•This approach is focused on correcting the problem long term.

You can modify specific symptoms which is something you can do with medication or acupuncture.

•You can lessen adaptive demands and that can be at any level. This is so important because you can do this even in the absence of any mechanisms of adaptation. You can always remove what is a burden psychologically, functionally, structurally.

•Finally, which is the most exciting part of the treatment, you can restore lost adaptive potential by either restoring the soft tissue elasticity or restoring the contractilty, activating motor activity, modifying metabolic endocrine factors, etc. this is the most exciting part.



•Which tools would you use?

•Contemporary electro-acupuncture is great for neuro modulation of the autonomic nervous system, somatic nervous system, visceral activity.

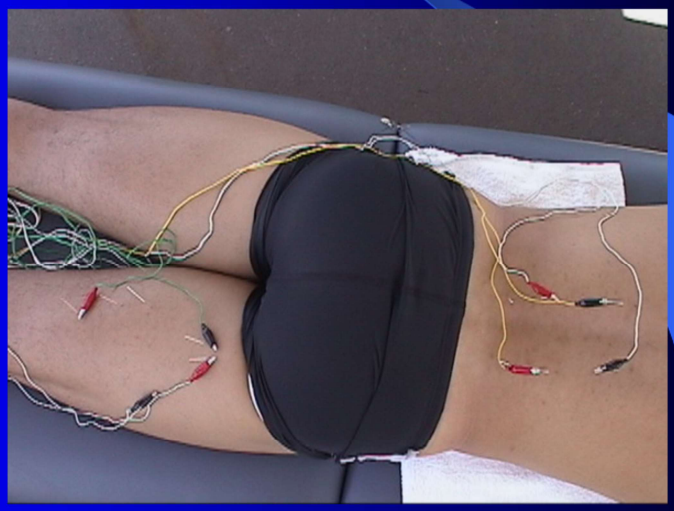
•Active release techniques and joint manipulation are useful for restoring range, elastic length properties, to activate collagen secretion.

•Nutrition fuels the body with the necessary nutrients it needs to recover and lower inflammation.

•Functional training combines all the therapeutic modalities into real life motion. The treatments are meant to progress into healthy joint movement.

Contemporary electro-acupuncture

- Local and multisegmental axial inputs combined in a right hamstring injury treatment

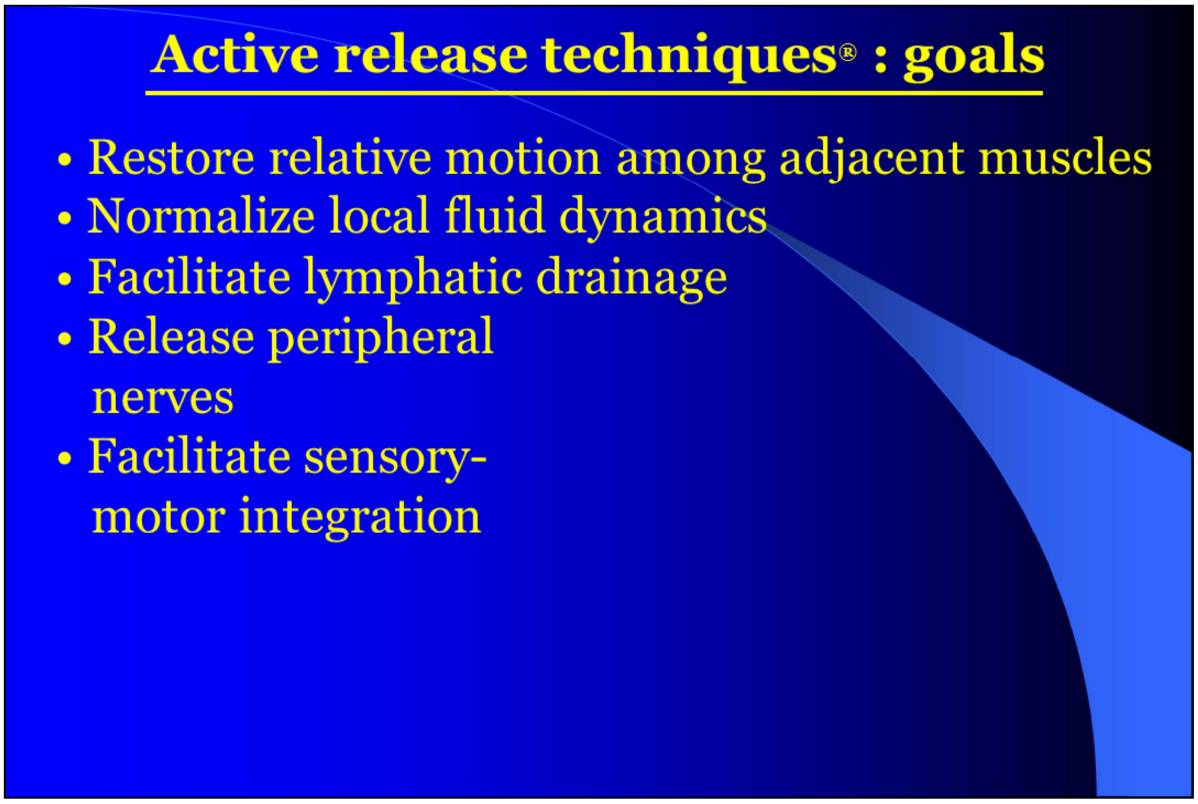


This method of acupuncture uses electricity attached to the needles.

modulation of peripheral nervous system activity (sensory, motor, autonomic)

modulation of visceral activity

modulation of systemic functions (endocrine, autonomic, immune, psycho-emotional)



•One thing we need to emphasize is the release of peripheral nerves. Very often, without a lot of symptomatology, there can be entrapment of peripheral nerves within the soft tissue system in the periphery along the extremity. Usually there are areas where these entrapments are located and they have a big effect on the function of recovery. Irritation of the peripheral nerves can play a huge role on function.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