

New science on Pain and Manual Therapy

Pain is not good one might think. This is true to some extent however we also need to understand that Pain is a natural way of our system to indicate that something is not right which again is good.

Only if we recognize that something is out of balance, i.e. feeling pain, we are capable to react upon it and either prevent damage, avoid further damage or start a repair mechanism.

Pain science is quite advanced but does not fully understand all factors involved and more important is that many Health Professionals do not understand even the more simple and basic principles of Pain. The result is that many suffer unnecessarily or using drugs that are normally intended to give a short term pain relief only and often in too high doses, over a too long time period or that have more negative side effects than benefits.

When Pain is treated the wrong way or not at all and we endure it then a not very desirable situation can appear, i.e. the development of chronic pain.

An important role in this plays a, not fully understood, mechanism that is often called Pain-Memory. It is believed that we can store the memory of Pain in our brain and even in every single cell of our body. In a situation like that it is possible to feel pain that is triggered by a small action like light pressure etc. or even non-physical triggers like emotions without the obvious presence of physical damage, chemical influence, mental stress or mechanical overload.

Movements that would normally not cause any Pain then become very painful experiences and our reaction to that in consequence is some form of compensatory actions and movements that are less painful. This cycle can lead to serious problems and may lead to drug dependency, long term therapies and treatments or surgery.

Manual Therapy can in many cases ease the pain to some extent but often is only a short term solution. It is the body only that can achieve a healing and long term solution, any therapy or treatment is only an encouragement from the outside to re-gain the necessary balance so that the inert natural healing mechanisms can do that work.

It should be understood that therapeutic solutions which are more natural are likely to achieve better results than others with some exceptions in specific individual cases.

Most Methods of manual therapy have been, so far, also a pulling (traction) and a quite forceful mobilization or adjustment with fast thrusts etc. or strong pressure.

Manual Therapy ideally should involve a multi-level approach to treat the whole system of muscles, joints, ligaments and fascia.

Proper structural alignment is likely the most important factor in this scenario because it is the prerequisite for an optimal nerve information exchange within the body.

Joints are complicated structures which have been fine-tuned over millions of years by Evolution and not a problem of 'wear' and 'tear', as modern medicine is seeing it.

The joints have, for their optimal function, different receptors with different 'Job's' – first described by Barry Wyke in 1967. It is quite interesting that these Mechanisms didn't find their way into the general Anatomy books; nobody seems to be interested in that – with the exception of the Pain science.

Today we have detailed knowledge about the complex Help-System that our body uses for protection of damage. It is the multilevel cooperation of damage-receptors, Position-receptors, a reduction system with lowering impulses from the Brain. This is done through the guidance of muscles and tendons by stimulating the Proprioceptors in the joint capsule and an influence on the Gamma system of the Muscle with its peripheral and central part.

Proprioception is the Self-recognition system of the body. Even with our eyes closed, we still have a quite clear impression about our position in the space surrounding us, the position of our arms and hands. This is possible through sensory-systems in the joints and

muscles that constantly transform information to the brain about the position within a space. This requires a constant change of signals in order to be properly recognized by the brain and nervous system, e.g. a camouflaged soldier can only be seen while moving, an incense is smelled only for a short while before we stop recognizing it etc.

Nociception is the Pain-recognition system of the body. If the stimulus is within a given normal or natural range no nerve stimulation is triggered, if it is outside that range the nociceptive system reacts and we feel pain.

The exact mechanics are more complicated as described and not as important in our case, what is interesting for us is following:

- Rhythmic, slow and steady movements and controlled movements are capable to lower (reduce) pain-impulses by sending touch- and movement signals to the Brain before the pain-impulses arrive there.
- Through specific impulses like traction and pressure the structures of the Motion-apparatus are stimulated in a way that movement and position is better recognized by the joint-receptors.
- Impulses of the same strength are not recognized by the nervous system. A change only happens through change in the impulse-level.
- The better the recognition possibility of the Proprioception, the better the 'realization' of the environment, the movement and reaction-possibility of our body.

In simple words we can say that natural movements do not cause us any pain and movements outside natural ranges could cause damage and usually are triggering painful sensations.

So we have to take in consideration what actually is normal and natural.

In most cases for example traction is not a normal situation and will cause muscles to tense in order to avoid a separation of the bones of a joint structure. If traction stays within certain limits though it may actually relax an existing muscular tension.

Pressure is a natural situation since we are under the permanent influence of gravity and air pressure but if in excess it will cause pain and muscular tensions, but it also can in specific cases ease extreme tense muscle points like trigger points.

Long term misalignments, also called subluxations, certainly cause problems due to the necessary compensatory reactions of the body that often lead to structural changes and inflammations within the joints and connected tissues. Movements that normally would not cause any pain are then often quite painful and thus avoided or altered.

Normal movement ability on the other side is necessary to keep the whole system healthy and able to react properly to outside stresses.

If we imagine our system as a computer controlled biological machine, where the brain is the computer, then an overload of pain stimuli is like saving a wrong message on the hard drive, i.e. when I move this joint it is painful etc.

This can be understood as pain memory and later a small event can trigger strong pain sensations.

In order to break that cycle we need to change the message than we want to be saved onto our hard drive, i.e. if I move this joint it is not causing any pain.

This logically requires that we stay within the natural ranges of movement, traction and pressure while applying any therapy or treatment, at least in most cases.

Ideally a Manual Therapy or Treatment achieves a harmonizing of the nociceptive (pain) and mechanical impulses from the nerve-endings through stimulation of the Proprioceptors (position-messengers).

This Treatment then brings the bio-mechanical and neurogenic functional disruption of the movement segment in harmony and fulfils all pre-requisites for a Pain Reduction treatment.

Not all manual therapies achieve this some seems to be better than others but all have common parts. In conclusion we should use therapies that include all necessary parts or combine different approaches in order to be more complete.

All functions in our body are trying to be in the best possible balance by constantly reacting upon all the outside stresses and the permanent happening of re-building and destroying. All of this requires a certain time, the healing time, and by assessing the different scenarios we can assume that it takes approximately six to eight weeks for most to acure.

In order to allow the body to do those, 3 main factors need to be considered:

1. Avoidance of harmful actions = Prevention
2. Therapy = Re-Alignment / Re-Balancing of the Problem
3. Self Help / Self Therapy as after care = Maintenance

If we leave out any of these 3 factors chances are that we do not achieve the desired result because the system is not able to make all required adjustments for a real healing to take place.

Because we tend to wait for symptoms like pain to tell us that it is time to react we often miss part 1 already.

The therapies we choose, i.e. part 2, often do not fulfil the necessary requirements to be effective.

Part 3 is likely to be done far too short term because we usually do not feel any more pain when the actual process of healing is in progress since pain is no longer necessary then, e.g. when a bone fracture is re-aligned and fixed with a cast or bandage the pain subsides very fast.

Conclusion: Further research in Pain science is needed to better understand all mechanisms involved. A therapy approach that combines different treatments and integrates prevention and maintenance is best to achieve a state of wellness and not just an absence of pain.

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