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# Dynamic alignment – deel 2

Opleiding fasciatherapie F.I.T.
Module onderste extremiteit

Short description of content: Posture correction has often been a laborious, fairly mechanical treatment strategy, which has also lost attention. From a more dynamic perspective (dynamic alignment instead of ideal posture), this offers great therapeutic options to improve the patient's functioning.
Learning objectives: Based on the tensegrity principles and body awareness, the student can stimulate the patient to move better.

## Houdingscorrectie


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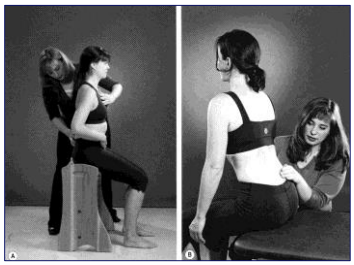
## Houdingscorrectie



(Lee, 2011)

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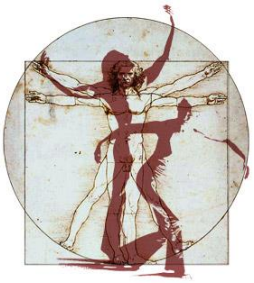
## Houdingscorrectie



*The idea is to assist the client in the process of growing 'out of the pattern', not to box someone into a particular postural idea. The former eases tension and leads to new discoveries; the latter piles more tension to what is already there*

(Thomas Myers)

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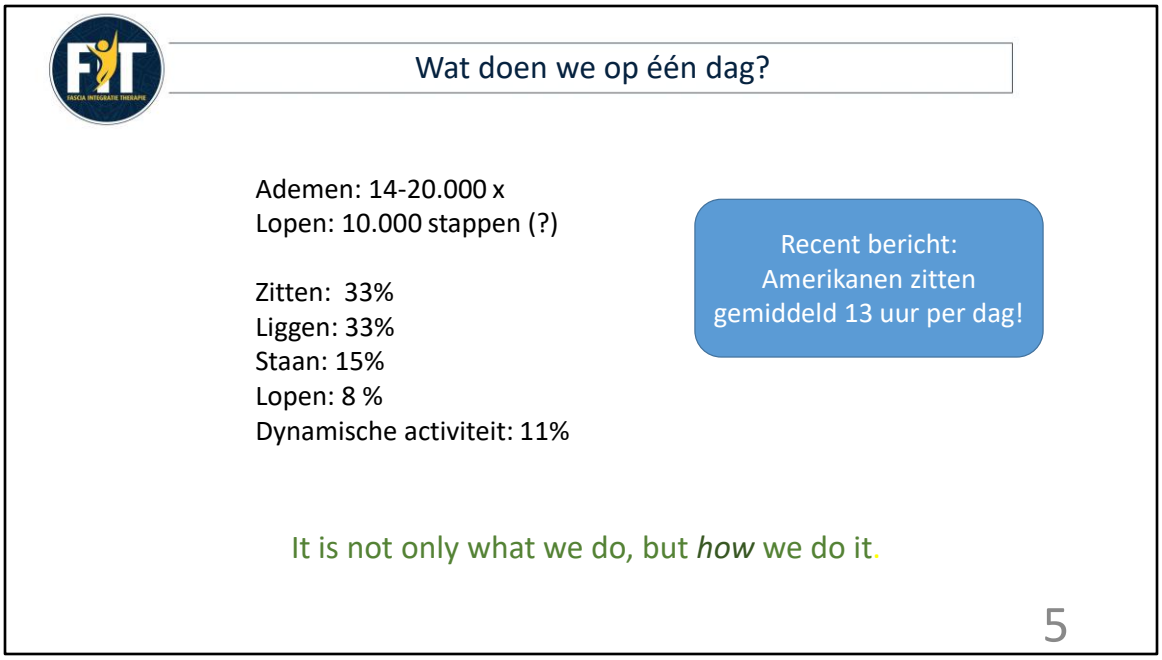
<<Telling someone to place herself in a certain position commonly increases tension and gripping, which will reduce the availability for these muscles to produce movement. Als de spieren bezig zijn een bepaalde stand te handhaven kunnen ze niet gebruikt worden voor de beweging Franklin 2012>>

<<Healing posture is a process of accumulating a new repertoire of sensations. By patiently cultivating healthy sensations in your posture zones, you feed your reptilian brain the information it needs to construct healthy new habits. If you use your analytical brain to "have good posture" or "walk right," you will only block the smooth coordination that your brain stem can provide. The result will feel awkward and inauthentic. So take your time Mary Bond, 2006>>)




We generally assume that all of our problems arise because our bodies aren't able to withstand the excertion caused by a certain activity, or because we are not strong enough and don't have enough stamina, or the activity itself is too demanding. We try remedy this situation either by making our bodies stronger and more flexible and increasing our endurance – or try avoiding the activity in question. We rarely consider the possibility that the reason of our complaints is how we perform the activity, how we move, how we use our body. It is our goal to use our body's intelligence to move in a more effective way so that you can do all kinds of ordinary activities better. The lessons teach you how to become your own measure for efficient movement. You will learn to perceive consiously how to move, where there is tension in your body, where you excert unnecessary effort, and when you are not making use of your full potential. (Frank Wildman)

In modern life, moving appears to be optional. The less we move, the less we are capable of moving.

Chronic pain is warning us of motion starvation.


Don't make the back hollow, but hinges in the hip
Upright posture automatically activates the TrA and multifidi

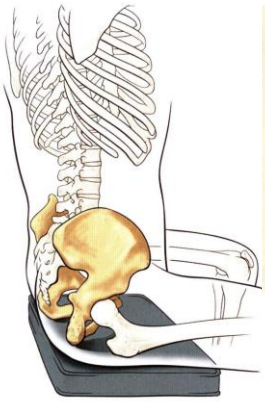
<< What you can't see are the contracted muscles at the front and side of the neck, the shortened biceps (both factors in carpal tunnel syndrome), forearms chronically in spasm from typing, tight hip flexors, compressed nerves in the pelvis, and buttocks with impaired blood circulation. Did you know that when you sit on your butt all day, your gluteus muscles stop working.' The glutes are not just something to sit on; they're major muscles that you need to stand erect, jump, and walk up stairs.
Put all these consequences of sitting at a computer together, and you've got lower-back pain, neck pain (usually on the side where you hold your mouse or phone), pain between your shoulder blades, migraines, a painful jaw (TMJ, or temporomandibular joint, syndrome), and, of course, numbness and tingling in the forearms and hands from carpal tunnel syndrome. Certainly, the office worker inhabits a very dangerous place.  Ming 2008>>

<< Prolonged sitting has been linked to a sharp

reduction in the activity of an important enzyme called lipoprotein lipase which breaks down blood fats and makes them available as a fuel to the muscles. This reduction in enzyme activity leads to raised levels of triglycerides and fats in the blood, increasing the risk of heart disease. Extended sitting has also been shown to cause sharp spikes in blood sugar levels after meals, creating the perfect setting for Type 2 diabetes

Mosley 2013>>

## Zitten



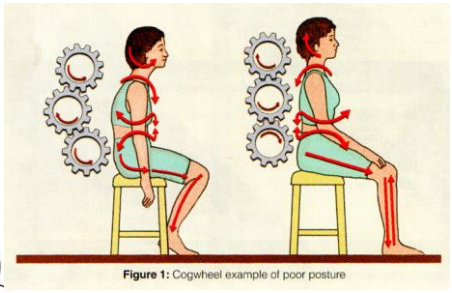


Figure 1: Cogwheel example of poor posture

When the spine is in line……you feel fine!

(Dimon, 2011)

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<<The pelvis is also ideally designed for sitting upright. The bones forming the lower end of the pelvis, the ischia, function as two rockers on which it becomes possible to balance the weight of the trunk while sitting. Although many animals, especially other primates, are capable of sitting, humans are the only animal capable of sitting fully upright with the trunk vertically balanced on these bones, which become our feet when we are sitting. Dimon 2011>>

## Lopen


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<<We all stand and walk differently, but we all walk with an identical sense of 'normalcy' associated with our own way of doing it; and this sense of norm has for each of us an equal feeling of 'rightness' to it. Yet, some of us stand and walk with far more ease and efficiency than others, while some have accustomed themselves to doing it so poorly that their posture and manner of walking undermine the health of the whole system.
Juhan 2003>>

<<Mulder, T. (2001). The born adjuster: about movement, consciousness and behavior. Amsterdam: Publisher Contact

Gait pattern is determined by

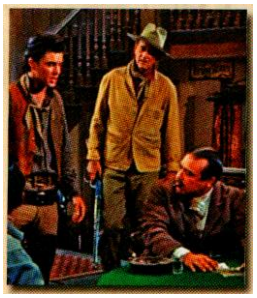
- Age and gender
- Physique
- Shoes
- Living conditions
- Surroundings
- Psychological state
- Fashion

- Group togetherness
- Purpose of walking>>

<<Researchers and public health practitioners have recognized that participants in health promotion programs have varying levels of readiness to undertake potentially challenging lifestyle changes, such as increasing physical activity to a level of 10,000 steps per day. Consistent with the Transtheoretical Model, interventions can target various subgroups, based on level of readiness for health behavior change, and interventions can be tailored to differing needs or preferences of the participants. Studies have shown that such targeted approaches are effective , cost-effective and often lead to greater improvements in health outcomes compared to non-targeted or non-tailored approaches . 36 Weeks lost weight.

Rosenkranz RR, Duncan MJ, Caperchione CM, Kolt GS, Vandelanotte C, Maeder AJ, Savage TN, Mummery WK. Validity of the Stages of Change in Steps instrument (SoC-Step) for achieving the physical activity goal of 10,000 steps per day. BMC Public Health. 2015 >>

## Enkele beroemde loopjes



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Wide hips for women and wider shoulders for men increase the chance of a partner. Marilyn Monroe alternately took a piece off her left and right heel to increase her hip mobility in the lateral direction.Presumably due to their generally wider pelvic structure women are already prone to genu valgum and other knee issues, as well as piriformis syndrome, which is six times more frequent in women than men. Exaggerated lateral hip movement could exacerbate these tendencies.
A person's walk is an expression of his or her personality, identity and individual style. What should a gender-bender drag queen do without her slinky walk?

## Lopen

In modern life, moving appears to be optional.

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Today, unlike our ancestors, we may chose not to move. In modern life, moving appears to be optional. The less we move, the less we are capable of moving. One of the oldest reasons to move is an empty stomach (or a full bladder, red). Dat hield in rennen, vechten, klimmen, graven etc. From prehistroric times to about the 20th century, the world was physically a very stimulating place for human kind. (Egoscue)

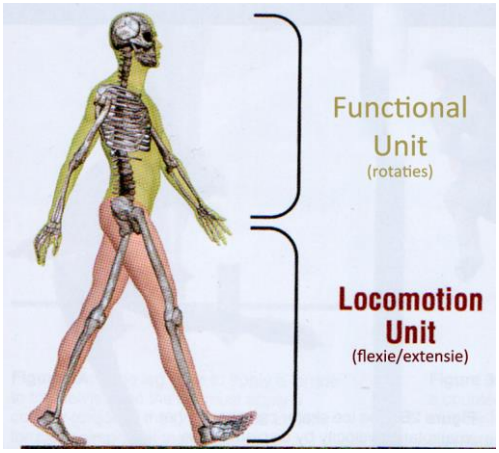
It is possible that the ability to walk with optimal elasticity only truly develops if learned from early childhood and promted by the environment. It is possible that the environment of Western industrial civilization simply does not require children to learn efficient, elastic walking. We suppose this lack of proper usage of elastic fascia contributes to the pandemic of lower back pain in the Western world.

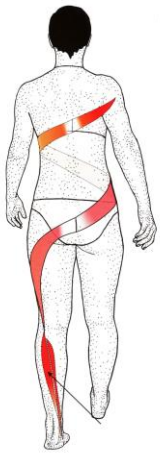
<<Similarly, a study examining the gait of women of the African Luo and Kikuyu tribes carrying loads of up to 20% of their body weight on their heads, found that their oxygen consumpdon was largely independent of the weight, provided they were allowed to walk at a speed comfortable for them. When well-trained British soldiers were examined, carrying up to 20% of their body weight on their backpacks, their energy consumption increased in proportion to the weight carried. Interestingly, when the African women were asked to walk at an uncomfortably faster or slower

pace, they exhibited the same weight dependent (and probably more muscular driven) pattern in their energy expenditure as the soldiers (Alexander, 1986; Zorn & Hodeck, 2011). Schleip in Schleip 2015 H10>>

<< Both approaches have made it clear that elastic walking entails very precise coordination, that is to say, it requires the right amount of force to be applied at precisely the right time, much like the force that is needed to keep a child's swing in motion. Zorn in Schleip 2015 H17>>

## Split design



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## Inverted pendulum

1960 - Giovanni Cavagna: in walking, energy is saved by the action of a rigid 'inverted pendulum' and elasticity is not involved.

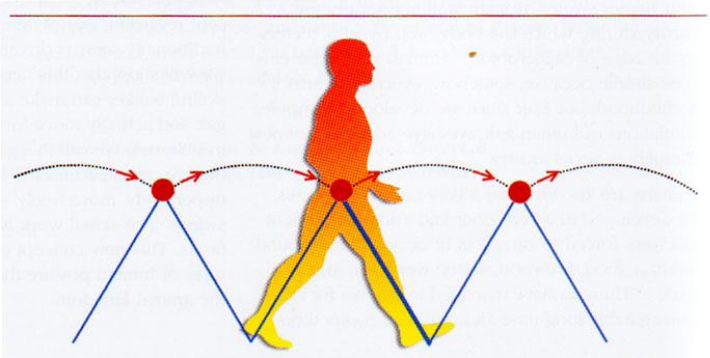

**Figure 1:** The stance leg as an inverted pendulum

(Zorn, 2012)

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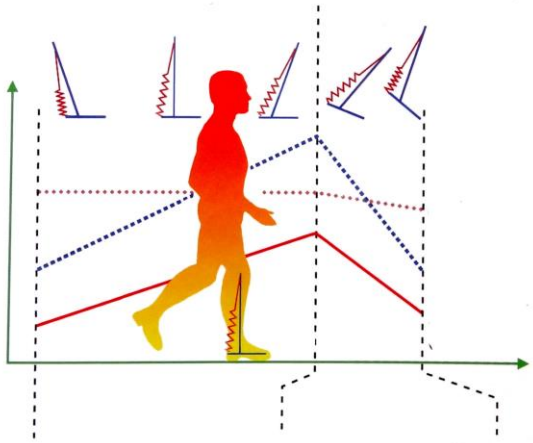
<< The fluctuation in the vertical center of mass (COM) during walking is a functional movement that converts potential energy into kinetic energy and vice versa (Cavagna & Margaria, 1966). The conservation of kinetic and potential energies aids in minimizing the metabolic energy cost. Recent studies showed that minimizing the vertical COM movement leads to an increase in the metabolic cost (Gordon, Ferris, & Kuo, 2009; Ortega & Farley, 2005).
1960 Giovanni Cavagna: In running, energy is saved by elastic storage, as in a bouncing ball, while in walking, energy is saved by the action of a rigid 'inverted pendulum' and elasticity is not involved. Zorn 2012>>

## Meer veerkracht

Reminder: collageen is zeer elastisch



Isometrische contractie

Achillespees lengte

EMG gastrocnemius

(Zorn, 2012)

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<<Although this is a fixed-end contraction where the whole muscle-tendon unit length is kept constant, one can clearly observe changes in fascicle orientations by contraction: fascicles shorten with increasing angles. Contraction thus induces deformation of fascial organization of the muscle. Shortening of fascicles occurs at the expense of elongations of the tendinous structures [Griffiths 1991; Kawakami et al. 1998).

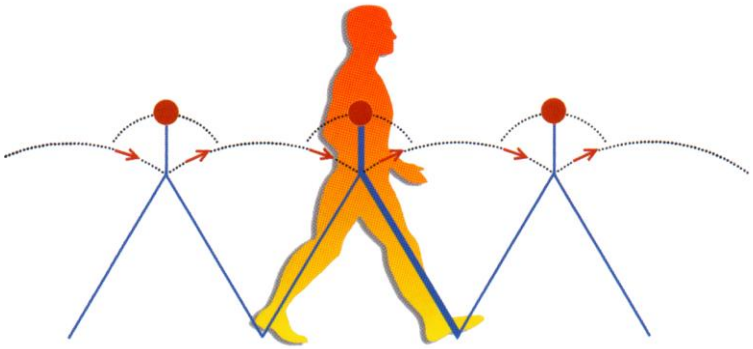
During dynamic human movements, this muscle-tendon interaction plays an extremely important role. Kawakami et al. (2002) used ultrasonography to track length changes of the gastrocnemius fascicles during ankle hopping preceded by a counter-movement, and showed that fascicles contract isometrically when the muscle-tendon unit is being lengthened. In this phase, tendinous structures are lengthened and store elastic energy which is released during the shortening phase that follows, to add to positive mechanical work. A similar mechanism has been found during human walking (Fukunaga et al. 2001). Stiff collagen can take a lot of force and store a lot of energy while changing it's shape just a little.

In the past, animal materials were used when great stiffness and elasticity was required: violin strings, bow strings, catapults, etc.

Through the help of the stance leg, the falling body weight is softly slowed down, and its energy is used to draw the Achilles tendon, like the string of a catapult. The gastrocnemius muscle is working stricktly isometrically (that is only the muscle belly not the tendon) Isometric contraction can be done in a slow manner and therefor anaerobically. Isometric contraction has a high energy efficiancy (maar niet heel veel onderzoek naar gedaan). With adequate gait style, the Achilles spring is stretching before and recoiling during each toe-off phase by about 7 mm. (Fukunaga 2002). With such a gait pattern, some African women are able to carry the equivalent of 20% of their body weight without any muscular effort

(Hoglund 1995). Zorn 2012>>

## Lopen met elasticiteit



Model van Adjo Zorn en Kai Hodeck

(Zorn, 2012)

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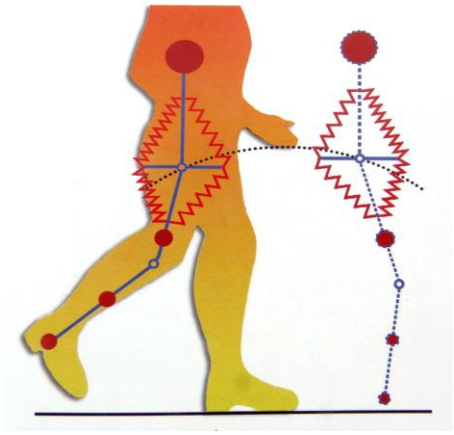
<<Little is still known about the function of the psoas while walking. A few EMG measurements suggest that the psoas tighten at the end of the stance phase and the start of the swing phase, this supports the jumping hypothesis. The fascicles are of equal length, which fits in with the hypothesis that the psoas is primarily isometric.In walking, the spoas is stretched most when the hip is in internal rotation, the action of the psoas is enhanced, causing stronger lateral flexion and rotation of the spinal components. This rotation between pelvis and spine supports the stretch of the PLF on the other side.
The addition of a spring to the inverted pendulum has important consequences: if the spring parameters are adjusted properly, this structure oscillates and has a natural frequency. In this sense, it's a true pendulum.
The bootstrap design actually needs a certain amount of mass as a counterweighty, balancing high above the hip joint as is typicalb for the human species.
Computer model: interestingly, just by changing the resting length of the springs, and with them the natural frequencies of these pendulums, our model can adapt to various velocities, anatomical variations, and even to a certain amount of carried weight. And all of this completely passive, without any aiony engines (muscles)or any other expenditure of energy. Zorn 2012>>

## Swing walker

F. thoracolumbalis

M. gluteus maximus



M. psoas

(Zorn 2012)

15

<<Having watched probably thousands of people walk, I estimate that more than nine out of 10 people fail to extend their hips and spine in gait. This is potentially due to the fact that the majority of people are either over-pronated or over-supinated and they tend to compensate by flexing the hip flexors to lift the leg forward, instead of lengthening them first to create free motion forwards. The latter is effortless, the former requires effort and whole-body adaptation or compensation. The inability to extend our spine further reduces our ability to extend or lengthen the abdominal muscles, so they, too, are operating in a suboptimal environment. Any wonder the 'six-pack abs' dream is so prevalent?

In a flexed-up world, we sit down all day walk around staring down at our phones, driving our cars, walking with flexed hips, flexed spine and pronated feet, and rarely get the opportunity to stand tall. Our natural response to this is the desire for a flatter tummy and a six-pack.

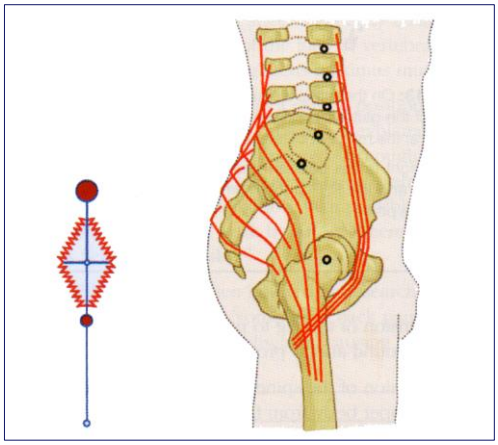
Sit-ups never have and never will be effective in an environment where you spend your day in flexion.

Sit-ups flex your spine towards maximum flexion from a neutral(ish) position, thus

encouraging strength in a shortened range whilst not allowing for any extension in the spine and thus limits lengthening in the abdominals.
The only role the abdominals have in motion is to flex the spine from a long, extended position - so please create exercises to do just that and then do the same for all muscles in the body.
Flexing your abs over a Swiss ball is better (more length), BUT anything that lengthens your abs whilst on your feet and incorporates your foot function as well is an awesome way of going about flattening the stomach and opening up the 'eight-pack', baby! Yes, why settle for just six when you can have all eight? Ward 2013>>

<<The hip flexors are not responsible for pulling/flexing the swing leg forward in gait or running. The psoas is a mere swing phase perpetuator, not an initiator.
For about 2 decades we have been saying in our lectures, posts and podcasts that it is the reduction of the obliquity of the pelvis during gait from various other tissues and biomechanical events that causes leg swing, meaning the trail leg is brought forward in swing largely by the abdominal muscle linkage to the pelvis (and other loaded tissues) that is responsible for forward swing of the leg. It is not the hip flexor group that does this hip flexion action. Thus it could be considered foolish to train the hip flexors to be the primary swing drivers. Here is another supporting piece of research.
"These experiments also showed that the trailing leg is brought forward during the swing phase without activity in the flexor muscles about the hip joint. This was verified by the absence of EMG activity in the iliacus muscle measured by intramuscular wire electrodes. Instead the strong ligaments restricting hip joint extension are stretched during the first half of the swing phase thereby storing elastic energy, which is released during the last half of the stance phase and accelerating the leg into the swing phase. This is considered an important energy conserving feature of human walking. "
Dan Med J. 2014 Apr;61(4):B4823. Contributions to the understanding of gait control.>>

## Veerkracht



Reminder: collageen is zeer elastisch!

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Spinal engine Model van Serge Gracovetsky

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For walking, legs are practical but not necessarily necessary

<< Many theories of upright two-legged (bipedal) human movement suggest the legs authorise or initiate gait and the torso, or axial body, "travels along as a passenger". As Gracovetsky points out, from an evolutionary point of view: "Locomotion was first achieved by the motion of the spine. The legs came after as an improvement, not as a substitute." w (This recapitulates the embryonic forming sequence, since

the legs are among the later structures to grow, some embryological time after the spinal structures are in place.)

Gracovetsky shows that in human walking, the lumbar curve of the spine is paramount in the translation of forces to and from the ground, via the legs. It is not a passive passenger, carried along by them. According to Gracovetsky, the spine drives the limbs from above, which allows the legs to translate the amplitude and quality of the movement forces to and from the ground using it step by step as a temporary energy store (via the heel strike pulse). As yoga teachers, we are well served by understanding this structure and Gracovetsky provides cogent reasons why it is an advantage to keep the body supple and mobile, to naturally translate energy as efficiently as possible.

Any theory of walking that presumes initiation in the legs is challenged by this research. (In close-up footage of the spine it was impossible to detect that the person walking had no arms or legs and walked

directly on their sitting bones.)

H7 Avison 2015>>

<< The connective tissues and deep muscles around your spine are wrapped in a spiral pattern. As bodily movement becomes more active, the connective tissue, and musculature wrap tighter around your spine creating the elastic recoil effect that increases the spring of your entire body. From the spring in your step, to the extension of your upper torso, and neck your body defies gravity. Parore 2002>>

## Rotatie

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<< Samuel (2001): Kenyan women routinely carry up to 70% of their body weight on their heads, yet they are not particularly fit by ordinary standards of fysical fitness. This ability arises not through muscular strength but through the women's sensitive use of the inherent periodicy of walking, the pendular motion of their hips. Treadmill tests show that they can carry up tp 20% of their bodyweight before breathing even becomes affected. Op het oog was het verschil in timing niet te onderscheiden van het marcheren van soldaten. Maar net zoals bij een schommel komt de timing heel precies.  Smith 2005>>

<<It was observed that women of some African tribes are able to walk with loads on their heads without using more energy than is they were not loaded. British army recrutes were not able to do this. Het verschil in gewicht tussen dikke en dunne mensen heeft geen invloed op energy expenditure
The involvement of elastic fascia, especially the gluteus max and psoas springs might provide a possible explanation as an energy-saving mechanism.

African pelvises rotate much more than European ones. This might be an indication of an extended stretching and recoiling usage of the lumbodorsal fascia. We also noted strong rotations of the pelvis, also in the transversal plane, suggesting a contribution

from the spinal engine. Furthermore, a highly pronounced arm swing is common in the african style of walking.
In many people from our culture the lower back is a desert territory suffering famine. Movement is needed to ‘stir the soup’ This famine results in degenerating collagenoous fibers – a syndrom we might call ‘frozen lumbars’. The lumbpdorsal fascia can seldom stretch itself, and the discs are buried alive. Egoscue>>

## Lopen met of zonder rotatie

*"In many people from our culture the lower back is a desert territory suffering famine."*

Egoscue

= buikspiertraining functioneel

19

<<Having watched probably thousands of people walk, I estimate that more than nine out of 10 people fail to extend their hips and spine in gait. This is potentially due to the fact that the majority of people are either over-pronated or over-supinated and they tend to compensate by flexing the hip flexors to lift the leg forward, instead of lengthening them first to create free motion forwards. The latter is effortless, the former requires effort and whole-body adaptation or compensation. The inability to extend our spine further reduces our ability to extend or lengthen the abdominal muscles, so they, too, are operating in a suboptimal environment. Any wonder the 'six-pack abs' dream is so prevalent?
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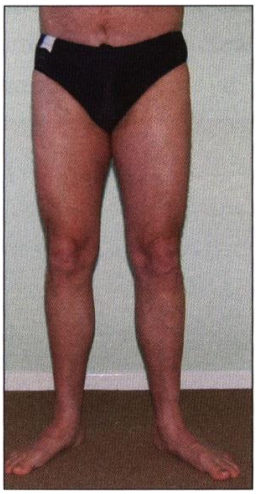
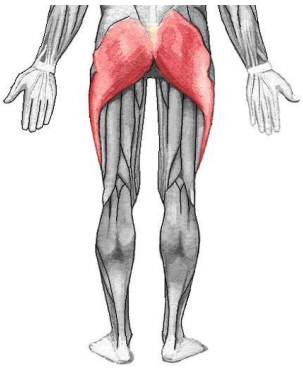
## Exorotatie benen





(Earls – 2017)

20

<<Turned-out feet are yet another wonderful indicator of foot and hip function. Big rule »1 states that muscles always lengthen before they contract in movement. This means that to set itself up perfectly for gait, the brain must place the foot in a position that creates the possibility for the muscles of the foot to lengthen in order to get some reaction in the extensor chain - a contraction that will propel us forward. The big muscles in the extensor chain, so often affected by turned-out feet, are the mighty glutes,

The driver of the bus subsequently triggers movement in the tibia, femur and pelvis, pushing them all in the same direction. In a bilateral or static stance, i.e. hip width apart, the impact of this movement at the hip, as a direct result of pronation, will be:

- hip flexion
- hip adduction and
- hip internal rotation

The exact opposite of the concentric action of the glutes!

Why do all trainers and therapists report the glutes as the number one sleepy muscle In the body? Because up to 95% of people on the planet over-pronate feet in gait,

and as a result can't further pronate their feet sufficiently enough to cause the reaction we want, (See page 150 of this document for reference,)

The subconscious body has made a simple idaptation to foot alignment in order to optimise ffi performance:
The over-pronated foot becomes less and less pronated the more turned out it is,
»The less pronated the foot is, the more it can move into pronation,
The more it can move into pronation, the more impact it has on the glutes eccentrically to engage them in walking and propulsion through the gait cycle.
Turned-out feet turn the glutes on by accessing greater movement into pronation.

Our conventional approach could be to:

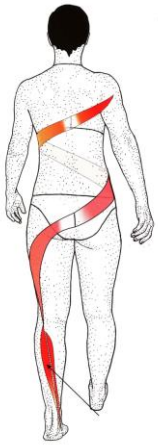
- consciously straighten the feet up - this never works
- To apply some orthotics to minimise the over-pronation to engage the glutes - glutes will only activate if there is flexibility in the arch of the orthotic and movement is promoted
- Activate the glutes through concentric training principles from neutral to extended, abducted and/or externally rotated - this is limited as the . actual role of the glute is never, ever challenged

The solution to this problem is not to place the foot and hip in neutral, but to create an environment where the feet mobilise the hip in such a way that the muscles of the hip and extensor chain are challenged to eccentrically decelerate movement in the lower limbs, isometrically stabilise the movement and concentrically propel us into extension in one simple action. My advice would be that to pronate the feet more is to trigger a supinatory, extension-orientated reaction in the extensor chain.

A turned-outfoot always presents itself as an internally rotated rearfoot with an external hip rotation (duck feet) and, more often than not, an anterior displacement of the centre of mass - if the weight is predominantly in the forefeet. The implications of this are huge and the potential problems that could arise are numerous, from back pain to hip pain and foot pain to neck or shoulder pain. Ward 2013>>

## De knie

Kneeing in: eigenlijk altijd het gevolg van een collaps van de extensie keten: Verzwakte re-supinatie en heup extensie.



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<<knee-over-toe that highlights how the foot, ankle and knee interact in movement, thus proving that to keep the knee over toe in lunge and squat patterns, not to mention keeping knee over toe as a sports-specific approach, makes absolutely no sense at all.
A safe knee is one that can freely move in accordance with the ankle, if the foot collapses the knee naturally moves towards the midline, if the foot supinates strongly the knee naturally moves away from the midline.

It's no different for the knee. When the knee is trained to be over the second toe, it generates its own comfort zone about that point - powerful and mighty! As the knee moves medially along with a pronation of the foot, it becomes exposed, at risk and unsure of itself. In the video above you will have noticed the range available to any knee in natural movement is so much bigger than this 'knee over toe' space. The comfort zone NEEDS to be as big as that whole range of movement, and not just down.

Imagine having newfound strength those dark, never before visited spaces (both medial and lateral to the knee) and imagine the increase in strength you would naturally have in the knee over toe' space. The midpoint will always be tronger than

the extreme ranges, and it is fair to say that the midpoint can only be as strong as its relative extremes.

Here now lies the problem with training knee over toe at high speed, in a high-performance non-linear 'Environment such as football, tennis or dancing, it is Impossible to keep the knee over second toe. In gait or walking, the knee is NEVER over second toe apart from a moment between pronation and supination. The good news is that muscles in the body are perfectly set up to allow, control and manage the medial position of the knee, AND all muscles need to frequently go there in the training, exercise and rehabilitation of the knee. The knee needs to visit its dark zone on a regular basis if you are to get strong in this position. And since virtually every step you take goes there anyway whether you are walking or playing football, it is a good idea to focus on NOT Keeping knee over toe when training for movement.

But ask any AIM practitioner now and to them the idea of stabilising the knee is a joke. Why? Because the fewer knees they attempt to stabilise, the fewer knee problems they see. Mobility equals more and more healthy knees,
MECHANICAL ADVANTAGE
Once again, if you are squatting huge loads, it's not necessarily a good idea to let your knees and ankles roll in! The mechanical advantageous position is clearly knee over toe because it creates a column over a rigid foot structure where the strength at this midline of movement is strong relative to the strength at the extremes.
However, watch any heavy lifter and you'll notice that when they get to the bottom of the squat they naturally, subconsciously, flatten the feet and bring the knees inside second toe in order to generate sufficient power to return back up to the rest position. They naturally break the 'knee over second toe' rule - even though their coach is bawling at them not to! Why? Because that is how the body is set up to work.

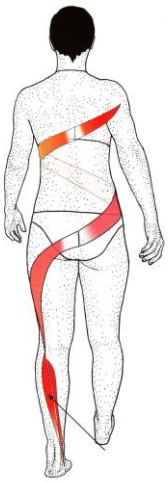
No growth can occur within a comfort zone - your body cannot reach heights or opportunity beyond its imagination when governed by a comfort zone. Only by venturing out into the big wide world, challenging your comfort zone and entertaining dark spaces, facing your fears, can you recognise and face up to your present boundaries and restrictions. For once you go beyond them, you will make new boundaries, have new limitations and new fears, but you will have moved on and gained strength, rendering old boundaries part of your now comfortable territory,

Integration is the one thing that the brain understands and is the one thing that you need to understand to work with the body at the highest level possible. Ward 2013>>

## Pronatie

Pronatie triggert de extensiereactie
(voorwaarde: 60 graden extensie grote teen)

Mits er voldoende spanning is in de tensegrity!

Extensieketen

22

<< Optimal movement accesses both pronation and supination whilst passing through the centre point. Pronation occurs to absorb the shock of ground reaction; the foot becomes flexible and mobile so as to adapt to the earth below it, whether concrete, sand or rubble, and is thus known as a mobile adaptor. Pronation is also the moment where the muscles prepare for propulsion. The foot was designed to function on the earth and on uneven surfaces: shoes, flat level ground and concrete are its worst enemy it gets lazy and subsequently downgrades its function, with the true role of the foot no longer needed in the flat world we have created.

Pronation has a direct impact on the centre of mass. It drives it away, pushing it towards the other foot where, hopefully, a pronation in response will knock it back like a simple game of 'centre of mass tennis'.

A static pronation (flat foot) is not an ideal scenario since movement is either removed or extremely limited. A dynamic pronation is healthy as it creates a lengthening of muscles, which in turn can pull the body out of the position and back towards a centred state.

When the foot pronates, virtually all of the muscles of the foot lengthen and if big

rule »1 stands true, as 1 believe, then that makes virtually all of the muscles 'resupinators' of the foot. Ward 2013>>

Extension chain:
You also see the contra and ipsilateral deviation in the loading phase.
You must test Gluteii functionally: see your test sit up at FFA or see the same deviation.

- Weak gluteii (minimus, medius) pelvic prolapse contralateral or latroflexion trunk see ipsilateral.
- Spine pathology may be related to poor shock absorption (Bojsen_Moller F 1979)

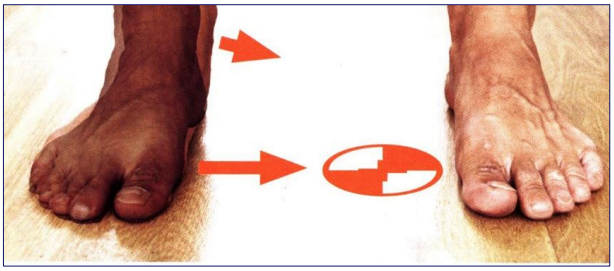
<< People are dying from the feet up. I watch people walk, and find the less spring in their step, the unhealthier they are in the body above. They are shuffling to a quicker death. Gravity makes toxicity settle to the bottom. In orde to pump toxicity out of the body we need healthy feet hinges Karrash 2012>>

<<The thing about over-pronated feet is that they simply cannot allow the body to perform optimally as it appears to have been designed, thus it must settle for generating maximum functionality possible, given the parameters it has to deal with today.
So it responds in a variety of ways - all of which j are possible:

- Feet turned out
- Knees hyper-extended
- Pelvis tilted foniwards or backwards
- Spinal kyphosis
- Deactivated glutes
- Forward head posture
- Slumped ribcage/protracted shoulder girdle

Ward 2013>>

## asymmetrie



"Feet act – the body re-acts"

Gary Ward

23

<< On the down side, if one foot is flatter than the other the body responds in the frontal plane by shifting the centre of mass laterally, driving the pelvis sideways, causing a side bend in the spine, carrying a functional scoliosis in the spine, overtightening a groin, tightness in one side of the neck and/or a variety of unnecessan/ rotations in the system (rotated ribcage, rotated pelvis, oppositely rotated hips, etc). Nightmare!

If one foot pronates more than the other (not unusual) then there will be huge impact up the chain - for instance, exerting a rotational influence on, or an s-shape curve in, the spine,
it is not only my belief, but 1 also have many examples of a 'scoliosis' purely being the example of two feet that articulate differently to one another. With that in mind, it is very clear to me that the feet play a huge role in influencing the spine. Feet ACT, the body REACTS?  Ward 2013>>

## Voet tensegrity

***"When the feet are not happy, the rest of the body is not happy"***
**(Til Luchau)**

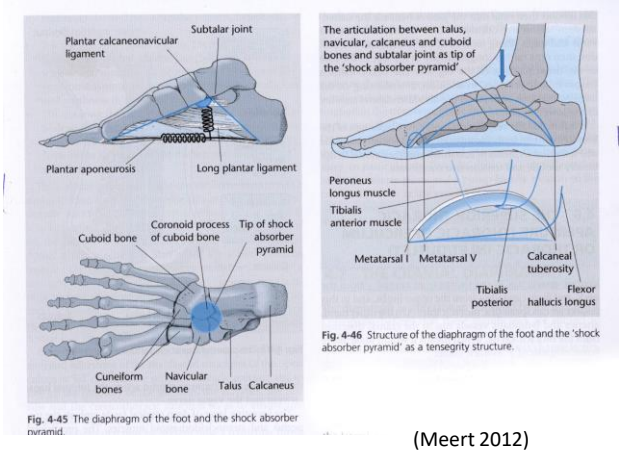


Fig. 4-45 The diaphragm of the foot and the shock absorber pyramid.

Fig. 4-46 Structure of the diaphragm of the foot and the 'shock absorber pyramid' as a tensegrity structure.

(Meert 2012)

24

Excessive subtalar pronation or collapse of the plantar vault places significant stresses in the knee, hip, and lower back (Chaitow and DeLany, 2005, pp. 187–188, 238). Morton's Toe syndrome (first metatarsal shorter than the second) hallux rigidus or functional hallux limitus, and shortened gastocnemius soleus complex can all cause adaptations in the mechanics of gait that produce stresses to the knee, hip, pelvis, and lower back (Travell and Simons 1992, pp. 380–383;
The psychological effect of foot problems of all kind is remarkably consistent: a deep, unconsious feeling of insecurity (Rolf, 63)
The foot is the underpinning structure that can determine much of the integrity for the rest of the person's body. (Earls 2017)

<<But flat feet are nothing to laugh about. Because soldiers with flat feet have poor endurance, they are accident prone because of impeded balance, they are slow to get out of harm's way, and they have difficulty carrying heavy loads.
In a foot with fallen arches, the muscles of the sole stay in permanent contraction. As happens when we clench our hands into fists, much of the sense of touch is lost. Deprived of a functional sole, the muscles of the calf, knee, hip and low back must take over the job of orchestrating load distribution, carrying out the foot strike, and performing surface evaluation and response

Footwear: pain or no pain, less is more
The enemy of the human foot, is the inhuman shoe. Encasing the foot in leather, canvas or rubber interferes with its function. The shoe's artificial sole robs the foot of lots ability to flex and extend fully and to read the terrain beneath. Zo veel mogelijk op blote voeten lopen.
Pick the shoes that are light, loose and flexible. High heels are a good-looking bad idea. On the functional woman, high heels will have no lasting ill effects, but it is one more blast of stimulus that the dysfunctional woman's body could do without.

The same 'less is more' formula goes for athletic footwear.
No shoes, no matter what the price or the brand, will cure foot problems. At best (and worst), they camouflage the dysfunction. A hidden problem only gets worse over time.

The best place for baby shoes is therefore hanging on the car's rearview mirror – not on an infants feet. Ergoscue 1998>>

<<The diaphragm of the foot generally consists of two elements (cs- Fig. 4-45):
Superficial element: the superficial plantar fascia or plantar aponeurosis with the short foot muscles that have their origin there. This aponeurosis stretches from the medial and lateral processes of the calcaneal tuberosity via longitudinal fasciculi to the toes and transversely out via transverse fasciculi.
Deep element: the long plantar ligament is stretched between the plantar surface of the calcaneus and the tuberosity of the cuboid and the metatarsals. Cranial to this lies the deep plantar fascia.
The arches of the feet form various arcs that are typically important in functional terms as models for stress absorption according to the tensegrity model. As basic osseous elements, the head of metatarsal I, the head of metatarsal V and the calcaneal tuberosity are of importance. The myofascial diaphragm of the foot with the plantar aponeurosis, the long plantar ligament, the plantar calcaneonavicular ligament and the muscles of the sole of the foot (in particular the quadratus plantae, the flexor digitorum brevis, the abductor hallucis and the abductor digiti minimi muscles) are stretched between these osseous supporting elements and thus form the elastic basis of the 'shock absorber' pyramid' of the foot. Meert 2012>>

## Barefoot schoenen

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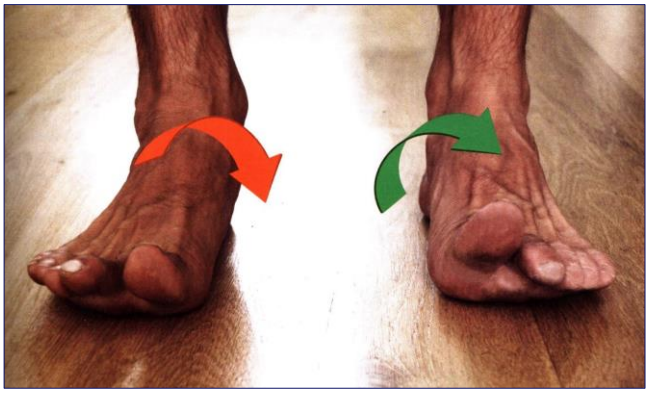
<<Switching from running in cushioned shoes to jogging barefoot is associated with the accumulation of greatest pressure in the forefoot and midfoot. The accumulation of the greatest pressure at the insertion of plantar aponeurosis can lead to the injuries of musculoskeletal system, in particular plantar aponeurositis. Even distribution of pressure among various parts of the foot in persons running in minimalistic shoes is associated with lower risk of injury than in the case of running barefoot. Szuluc P 2016>>

## Windlass mechanism



60 graden DF

26

<<In essence, the big toe is the starting point for the extensor chain. If the toe doesn't work I can guarantee that the extensor chain does not work either. And no extensions, abductions or external rotations of your glutes are going to help the situation. What about tight calves and hamstrings? Influenced by big toe function? You bet!

The windlass mechanism was discovered by Hicks in 1954, Basically, it suggests that the big toe and the long flexor muscle that inserts onto the big toe, flexor halluxs longus (FHL), create a mechanism that has significant mechanical advantage over any other joint and muscle combination in the human body.
Quite simply, it is the most important lever in the human body. Bar none.
When you lift your big toe, you add tension into the plantar fascia and the long flexor muscles. Ideally you will see the rearfoot invert and externally rotate as well. Lifting the toe should initiate a supinatory response in the rearfoot.
Problems arise when your client cannot achieve approximately 60° of dorsiflexion (lifting off the floor) in the big toe.

In the image, this professional footballer lifts his left toe and experiences supination of the rearfoot, but when he lifts the right toe, it highlights two problems:

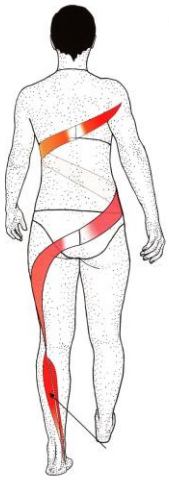
- less range in toe dorsiflexion
- coupled with pronation in the rearfoot

Every step he takes is governed by this factor and affects his whole kinetic chain and musculoskeletal system.

Some people can lift their toes way over 60° and some can't lift them at all. Neither of these create a useful outcome since 60° is optimal and fits perfectly into the model of centre.
More than 60° or less than 60° creates extensor chain limitations. The big toe is optimised only in centre or at 60° of flexion.

The windlass mechanism is fully active throughout the gait cycle, and inhibition in the client's ability to access it freely demands large amounts of compensation throughout the kinetic chain: such as overactive extensor digitorum longus (EDL), confused hip flexors, limited spinal extension and inhibited extensor chain muscles, such as hamstrings, glutes, piriformis and calves. More locally, however, the failure to activate the windlass mechanism normally leads to one disruptive outcome - pronated feet. Ward 2013>>

## Activatie extensieketen



Top down: lengte cwk activeert extensoren

Centraal: romprotatie

Centraal: veerkracht psoas

Centraal: sterke Gmax gluteaalspieren

Bottom up: valgus knie activeert Gmax / ext keten

Bottom up: pronatie activeert resupinatie / ext keten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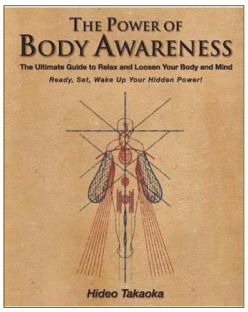
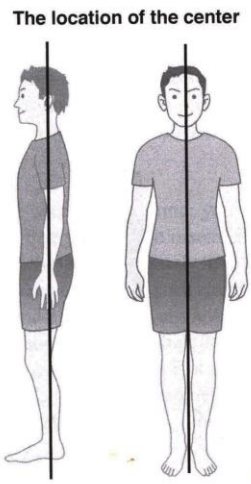
## Body awareness: het centrum





(Takaoka 2014)

28

<<I went back to the people in martial arts and told them about this. But they could not accept the idea that the center for ballet is the same as the seichu-sen for martial art. However, I was sure that seichu-sen in martial arts, body axis in baseball, axis in golf, and center in ballet were all the same thing. It is because when I asked the location of the line, everyone first pointed to the tip of head and explained that the line goes straight through the center of body from here.

First, that line will work as a guideline. You can stand up straighten Imagine you are a marionette manipulated by a string. If you have an image that someone is pulling the strings from above, you can stand straighter and more beautifully as if your body is smoothly growing upward. This guideline allows you to spend less effort to keep balance. Your body will be correctly aligned without any problems such as your left shoulder is lower than the right shoulder, or your hip joints are leaning. As a matter of course, not just when standing but also when walking, by following this guideline you can keep your balance without using any extra energy.
However, in order to walk straight, a vertical guideline is not enough. Walking means going forward. If you have a horizontal guide line as well, you can walk unswervingly. In fact, there is a body awareness of the horizontal straight line, too.

Muscles are activated in the area where your body awareness is developed. For example, let's think about our hands. You must have stronger awareness in your hands than feet. Do you know why? That certain parts of body can work better than other parts means the body awareness of the more efficient part is developed that much more. If you are right-handed, the body awareness of your right hand is more developed than that in your left hand. If you compare your chest and back, the body awareness of your chest should be stronger.
This means that body awareness always exists in the area where you can use your body parts well. The activated muscle controlled by body awareness will be fully relaxed when necessary. When it is necessary to produce power, it will immediately contract.
The center is the strong body awareness of the line going straight from the very top of the head to the bottom of the feet which coordinates the whole body. It is located in the area close to your spine. In other words, if you have awareness there, your inner muscles connected to each of the 26 vertebrae will be activated. As a result, all these muscles will quickly loosen in an appropriate order when relaxation is needed. In contrast, they will quickly contract in an appropriate order when power needs to be produced.
If each one of the bones and each one of the small muscle groups are nicely separated and move smoothly and flexibly with each other, the muscles located in between each of the body parts will have enough space for contraction and expansion. They can quickly contract as necessary. This makes it possible for you to pull out the hidden potentials that many muscles have and enables you to use your body where all the produced energies are maximally added. In academic parlance, I call this body usage 'dispersion and addition.'

Let's get back to the story of the center. The center goes through the middle of the psoas major. It means the psoas major is always ready to work. If you learn to use the psoas major well, the position of your torso becomes aligned and your standing posture becomes nice and graceful. You can also walk smoothly. Furthermore, the position of your neck and the balance of your chin will improve as well as the balance of your facial muscles. This will make your facial expression more relaxed.

What you must remember as one of the benefits of the center is it works as an axis for rotating motion. We can see many rotating motions in sports including swinging such as for baseball or golf Even for walking, a pendulum motion of the limbs is required. So you must have the center axis. The center is taking the role of the axis and core in such movements. Takaoka 2014>>

<<To be in neutral Is a futile exercise. It's a great reference point for us to assess how far we are away from it, but it's a useless concept for us to try and attain. The neutral point is a mere moment in time - something we visit for a fleeting moment, if at all,

during movement.

Introducing movement and understanding centre of mass and how the structures orbit around it creates an environment for the brain and nervous system to reorganise what it currently perceives as normal to a higher new state of normal where things don't hurt anymore. You, as a therapist, can not know where that is for everybody - you can't. You can have a hunch, but you will always be stabbing in the dark somewhat. The truth is that the only person capable of accessing the healing, the state of balance and symmetry that potentially eliminates the pain, is the person themself, So rather than teach centre (i,e, neutral spine), I teach you to find centre by mobilising the whole structure to reveal what is possible, opening new pathways, awakening dormant muscles and revealing new structural motion to a body that has simply got into bad habits.

To train the body to be in neutral eliminates stimulation of any muscle, it shortens our range and minimises our potential. Ward 2013>>

Someone with a flexion attitude is more likely to be bullied, someone with a military attitude is more likely to end up in a fight / fight.

> << Opening our hearts and letting down our guard in this way can be a scary proposition, because removing the shield leaves us vulnerable to many things—to being hurt, to letting others in, to feeling the pain against which we've worked so hard to protect ourselves, sometimes since a long-ago childhood. Yet this willingness to be vulnerable is the hallmark of an open heart. It requires an ability to trust in the face of fear, to feel safe in the middle of uncertainty, and to find strength within ourselves when we are feeling weak and insecure. Finding the

natural, physical support that exists within us as an unfailing architectural underpinning empowers us with a bone deep strength all our own that helps us to feel safe enough to trust, even in difficult times.

Psychological and emotional states are often reflected in the way we inhabit the body, as evidenced by many of the expressions we use to describe people. The words he is full of himself are likely to conjure up an image of someone with a puffed-up chest and whose energetic presence is directed into the front of the body (head and rib cage wheels rolled backward). This is a different image from the one seen by the mind's eye when hearing someone described as being spineless, having no backbone, or being weak-kneed (rib cage wheel forward and pelvic wheel back).

Consciously turning our attention inward and reestablishing our physical alignment along the central axis can bring about remarkable changes in

our emotional and psychological state. Porter 2013>>

Postural improvement is often time-consuming and therefore frequently neglected. Only restoring the balance can be effective for a long time.

Someone with a flexion attitude is more likely to be bullied, someone with a military attitude is more likely to end up in an argument / fight

## Het centrum

**Body sense:**
- Stand straight
- Higher eye level
- Large inhalations
- Don't worry about small things
- Sharp sensations
- Cool looking
- Stable core

**Deficiency Symptoms:**
- Overstrain, try too hard
- Lower center of gravity
- Narrower vision
- Worry about small things

**Benefits:**
- The centerline of gravity can be used
- The psoas major muscle always works
- Activates hamstrings
- Better balance of each body part
- Creates the axis for the rotational movement

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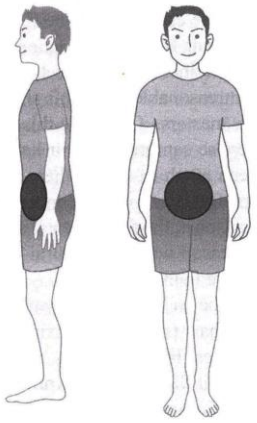
## Het centrum


30

## Onderste ‘tanden’

The location of the lower tanden



(Takaoka 2014)

31

<<The body awareness of the lower tanden gives you a steady and unshakable mind. When you are mad or upset, don't you feel something hot is coming up in your body? You may feel an unsettled lower body and feel like your feet hardly touch the ground. The lower tanden prevents this kind of problem. Therefore, a person who has the highly developed lower tanden might seem to be too stable and difficult to approach by others. But in a situation when everybody is panicking, the person with the lower tanden becomes very important for the group.

You will not care about small things. But it is different from the situation that you see the things from a higher and wider point of view. It is more like the lower tanden pulls your upset feeling down from the bottom to keep you calm.
Also there is a difference in respiration. The center gives you bigger and vertically longer inhalations. But the lower tanden gives you deeper inhalations. In other words, the upper body becomes light and your breathing goes deeper down. Takaoka 2014>>

## Onderste tanden

**Body sense:**
- Steady mind
- Deeper inhalations
- Robuust sensation

**Deficiency Symptoms**
- Easy to become upset
- Restless mind
- Shorter temper
- Easy to get stressed out
- Easy to be short of breath

**Benefits**
- Activates iliopsoas and diaphragm
- Promotes abdominal respiration
- Loosens shoulder muscles
- Controls automatic nerves

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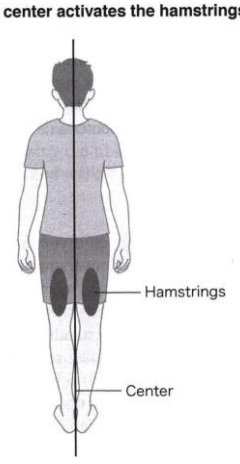
## Heupsteun


(Takaoka 2014)

33

<<Having watched probably thousands of people walk, I estimate that more than nine out of 10 people fail to extend their hips and spine in gait. This is potentially due to the fact that the majority of people are either over-pronated or over-supinated and they tend to compensate by flexing the hip flexors to lift the leg forward, instead of lengthening them first to create free motion forwards. The latter is effortless, the former requires effort and whole-body

adaptation or compensation. The inability to extend our spine further reduces our ability to extend or lengthen the abdominal muscles, so they, too, are operating in a suboptimal environment. Any wonder the 'six-pack abs' dream is so prevalent?
In a flexed-up world, we sit down all day walk around staring down at our phones, driving our cars, walking with flexed hips, flexed spine and pronated feet, and rarely get the opportunity to stand tall. Our natural response to this is the desire for a flatter tummy and a six-pack.

Sit-ups never have and never will be effective in an environment where you spend your day in flexion. Sit-ups flex your spine towards maximum flexion from a neutral(ish) position, thus encouraging strength in a shortened range whilst not allowing for any extension in the spine and thus limits lengthening in the abdominals.
The only role the abdominals have in motion is to flex the spine from a long, extended position - so please

create exercises to do just that and then do the same for all muscles in the body.

Flexing your abs over a Swiss ball is better (more length), BUT anything that lengthens your abs whilst on your feet and incorporates your foot function as well is an awesome way of going about flattening the stomach and opening up the 'eight-pack', baby! Yes, why settle for just six when you can have all eight? Ward 2013>>

## Heupsteun

**Body sense:**
- High center of gravity
- Feel supported from the back
- Quick and easy walking
- Feel positive
- Light footwork

**Deficiency Symptoms:**
- Too lazy to walk
- Inactive
- Difficult to start
- Cannot face forward

**Benefits**
- Activates upper hamstrings
- Quick start
- Strong forward power
- Relaxes quadriceps

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## Body awareness

Stel je voordat je loopt met het idee van:

- Het heeft toch allemaal geen zin

Of….

- oh, wat is het leuk


35

When you walk, imagine the idea of:

- what's the use
- I'll never do enough
- I can do anything
- you are being observed by your partner
- You are being observed by pushy men

<< Opening our hearts and letting down our guard in this way can be a scary proposition, because removing the shield leaves us vulnerable to many things—to being hurt, to letting others in, to feeling the pain against which we've worked so hard to protect ourselves, sometimes since a long-ago childhood. Yet this willingness to be vulnerable is the hallmark of an open heart. It requires an ability to trust in the face of fear, to feel safe in the middle of uncertainty, and to find strength within ourselves when we are feeling weak and insecure. Finding the natural, physical support that exists within us as an unfailing architectural underpinning empowers us with a bone deep strength all our own that helps us to feel safe enough to trust, even in difficult times.

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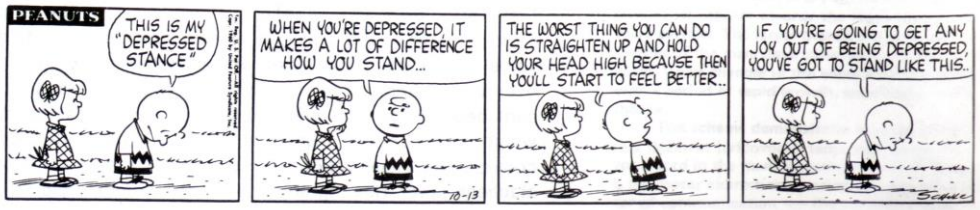
Consciously turning our attention inward and re-establishing our physical alignment along the central axis can bring about remarkable changes in our emotional and psychological state. Porter 2013>>

## Houding en emoties

### Stemming beïnvloedt houding, houding beïnvloedt stemming




Feldenkrais: '*all fear is expressed as flexion*'

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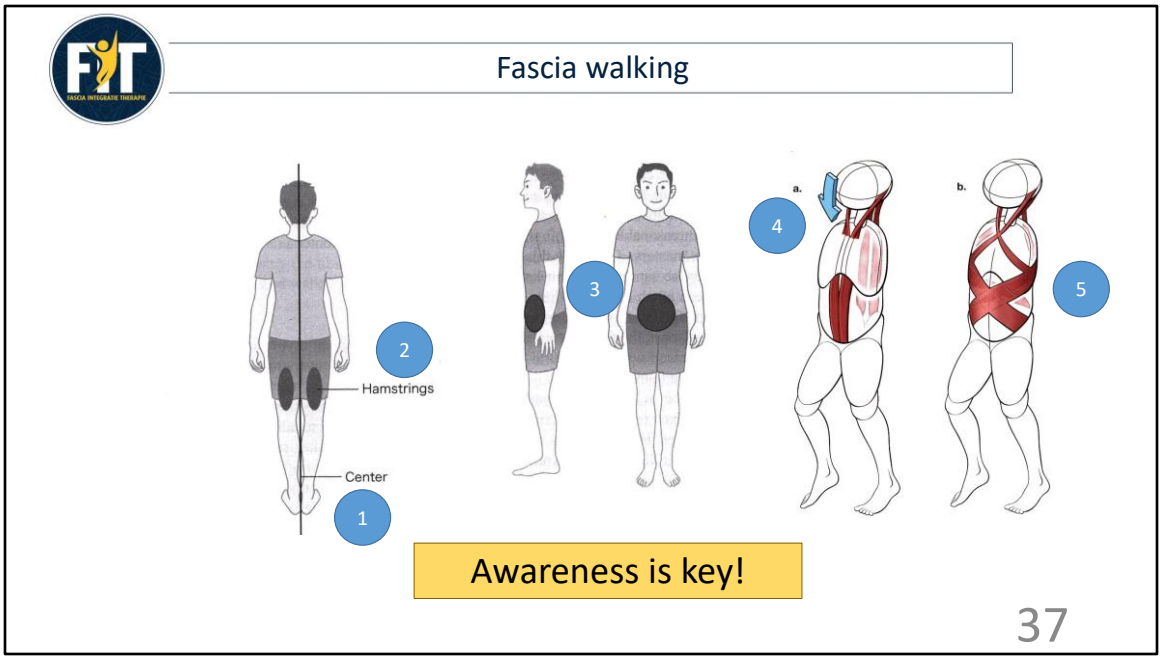
In addition to feeling lighter, a common response when a person discovers a more balanced stature is 'I feel open'. The delight is often flecked with a certain apprehension, for on the nether side of our wish to be more open and available to others is a caution about being too exposed.

Many of us keep constant company of a low-grade uneasy self-consciousness.

- Harvard psychologist Amy Cuddy's studies on "power posing" might. She found that postural choices add up to emotional content in your body via hormones that are released depending on how you hold yourself. She had groups of people hold slumpy, folded-arm postures and found that these "low-power poses" increased baseline stress-inducing Cortisol by about 17 percent and decreased confidence-boosting testosterone by about 10 percent. Standing powerfully upright increased levels of testosterone and shrank levels of Cortisol (see www.wired. com/wiredscience/2012/05/st_cuddy/).
- When you are tired and uninvolved, you feel the effort of every movement. When you are energized or involved, movement is effortless and time flies. (Franklin, 2012)
- Objects pull on my muscles from the outside, and my emotions pull on my muscles from the inside. (Juhan 2003)
- Fear is the basic shortener, tightener, traumatizer, and killer, headlong enthusiasm is its counterpart. Karrash 2012
- Chronic tension in your hips and pelvis can make it difficult to feel motion in this area. Such tension can be due to cultural beliefs about beauty and sexuality Because our culture decrees that thin is beautiful, many women tighten the muscles around their hips in an attempt to appear slender. People who are overweight compress this region to mask sensations of jiggling fat in the thighs or belly. Because our culture construes pelvic motion as female, men develop hip tension to avoid appearing feminine. Hip tension can also be an attempt to conceal the potency of the pelvic region by holding it immobile. The less we move any part of our body the less we feel it, to the extent that it can seem to be invisible. Any experience of sexual trauma increases the likelihood of hip and pelvic tension.
- Faulty movement and postural patterns created by negative emotions can be remedied only through the use of positive feelings and images (Marianne Fuchs)
- Feldenkrais: 'all fear is expressed as flexion' (Exception: high neck hyperextension in case of anxiety)




<< First, that line will work as a guideline. You can stand up straighten Imagine you are a marionette manipulated by a string. If you have an image that someone is pulling the strings from above, you can stand straighter and more beautifully as if your body is smoothly growing upward. This guideline allows you to spend less effort to keep balance. Your body will be correctly aligned without any problems such as your left shoulder is lower than the right shoulder, or your hip joints are leaning. As a matter of course, not just when standing but also when walking, by following this guideline you can keep your balance without using any extra energy.
However, in order to walk straight, a vertical guideline is not enough. Walking means going forward. If you have a horizontal guide line as well, you can walk unswervingly. In fact, there is a body awareness of the horizontal straight line, too.

I call this line 'the laser.' For body awareness of the vertical line mentioned above, I call it 'the center.'

The body awareness of the vertical and horizontal lines can be guidelines. It will change your walking from ordinary movements to excellent movements. If these guidelines work at various times in your daily life or when you do sports, it will be obvious that your body quality will improve significantly compared to the situation

where you have no guidelines at all. Body awareness works like this. It will improve your body operations, performances, and the quality of your body itself. Takaoka 2014>>

Rhythmic movements promote the pumping action of the fascia (tensegrety pumping, tension goes with compression)
By automatic arm movements you stimulate the fascia in the entire body, if this goes automatically you have the right speed.

- Light arm rotation
- Stand up,
- Makes great strides (the more muscles contract throughout the body). With this technique, your weaknesses will emerge within 5-10 minutes.
- Keep your feet straight
- On 1000 passes, size 44 - 5 degrees 1.05 meters - 30 degrees, 36.85 meters loss.

## Opbouw

- 3x 10 minuten wandelen

- Diagnostic: within 5-10 you will feel your weakspots.
- Wait 3-5 days for the next training.

- Doel: elke dag 30 minuten

When the body is balanced, walking is a pleasure.

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Weak spots emerge after 5-10 minutes. Wait at least 5 days to give fibroblasts, protein synthesis, MMPs the opportunity to perform their work. After 5 days the training will be easier than the first training, usually there is a 100% improvement. So the complaints come up about twice after the initial distance.

## Valkuilen

- Walking flat foot
- Flexed back (restricted breathing)
- No arm movement
- No rotation spine
- Thight nek

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## Fascia walking

Voordelen

- Voor elke leeftijd geschikt
- Low Cost training (Olivera, C.F. 2017)
- Predictor vermindering van cognitive functies (Kikkert, L.H.J. 2016)
- Activatie van het Brein (Lajoie, Y. 1993)

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The results indicate that measures of walking ability could serve as additional markers to predict cognitive decline. However, gait speed alone might lack specificity. We recommend gait analysis, including dynamic gait parameters, in clinical evaluations of patients with suspected cognitive decline. Future studies should focus on examining the specificity and accuracy of various gait characteristics to predict future cognitive decline. Kikkert LHJ 2016.

Our findings revealed that old adults progressively changed their kinematics at hip and ankle during the task. Meanwhile, young adults showed incipient signs of fatigue at the ankle joint. Both age-groups changed their gait strategy by reducing cadence and increasing stride length and increased the variability of step-width. Olivera 2017

Lajoie et al. (1993) report that while walking is a “highly practiced and repetitive action … balance control during walking is not automatic” requiring a portion of central processing. With aging, there is both a decrease in central processing capacity of the nervous system (Verhaeghen and Cerella 2002) and an increase in attentional demand for motor and cognitive tasks (Woollacott and Shumway-Cook 2002). Executive function (EF) refers to a set of cognitive skills that are necessary to plan, monitor, and execute a sequence of goal-directed, complex actions (Royall et al.

2002). Individuals with poor EF have been shown to have greater stride time variability while dual-task walking than those with normal EF. Linking cognitive performance and fall risk, Herman et al. (2010b) showed that a low level of EF was associated with a threefold risk of falling over a 2-year period.

## Algemene tips

- Breng zo veel mogelijk variatie aan in je dagelijkse bewegingen
- Gedoseerde ontbering: daag jezelf regelmatig uit
- Veel gapen en multidirectioneel uitrekken
- Denk: ruimte, lengte, zachtheid en vrijheid in je gewrichten (smile)
- Beweeg van binnen uit (with grace)
- Gebruik visualisaties

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Then sports are no longer necessary

Any single repetitive pattern tends to distort the open-ended flexibility of the entire system. Let us be on our guard against adopting any particular posture, mode of exercise, or repetitive discipline as being perfect, or ideal, or best. Only constant variation calls the full alertness of the system into being.
Although most of us do not aspire to elite performance, the comfort and elegance of our daily living depends on our bodies' capacities for motion. When joints and fascia are stiff, the nervous system cannot coordinate movement in ways that are fluid and efficient.
This meditative style of exercise is quite different from the "no pain, no gain" approach. Its purpose is to release habitual tensions rather than to increase strength or flexibility. Explore these exercises gently, never forcing and never pushing through any pain that you might encounter. Pain is a boundary to movement. By proceeding slowly and respectfully in relation to the boundary, you may gradually work through it. If you try to push through, you will make your tissues more defensive.
You will benefit when you visualize your body as malleable
You could picture a sculptor within you centering and shaping your clay (Thusius)

<< Any single repetitive pattern tends to distort the open-ended flexibility of the entire system. Let us be on our guard against adopting any particular posture, mode of exercise, or repetitive discipline as being perfect, or ideal, or best. Only constant variation calls the full alertness of the system into being.

The goal of bodywork should not be to impose universalized standards of posture and movement upon an individual, but rather to help the individual to cultivate the mental awareness and the physical flexibility to continually adapt to the changing needs of the moment. Juhan 2003>>

Move your arms as if you were conducting an orchestra
open your pelvis at the front
Imagine you have a tail, feel like you pulled it in (maybe a blow a long time ago), move your tail in all directions
Imagine your pelvis as a bowl of water that moves you back and forth (invented yourself)
Exercise: Imagine how your brain floats in a bag of fluid in your skull. Move your head and imagine how the brain moves with it. Now imagine that your brain initiates the movement and follows your head. How does that feel? (Franklin)

Neck: imagine a laser beam coming from your forehead: write the alphabet from left as far as possible to the right (with eyes closed)
If you've ever balanced the end of a broom on the tip of your finger, you can now imagine the top of your spine acting in the same way as the finger, while the skull balances delicately like the broom, lifted from below. Many people find great relief from neck and shoulder strain simply by knowing and experiencing the relationship between the spine and skull this way.
Feel pencils everywhere, make drawings everywhere in your body
Invitation to sit like a queen or king
Head like a neon balloon

## Top 10 of natural alignment

1. Maak jezelf één cm langer (the center line)
2. Core release 1: hersenstam ademen (lower tanden)
3. Core release 2: sway – vertrouw op veerkracht
4. Core activation 1: heupscharnier (window squat)
5. Diepe squat (release bekkenbodem)
6. Teen scharnier (bv tijdens tanden poetsen)
7. Soft foamroller extensie
8. 'Show your palms'
9. Fascia walking (walk with elasticity)
10. Veerkracht: (touwtje)springen

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Ad 2) Eyes closed: feel the sway try not to check. Visualize your bones floating in a sea of soft tissues. A tree in the hard / soft wind. Possibly on mat / pillow
Ad 3) breathe in, breathe out, take a break, feel when your body feels it is time to breathe again
Re 6) walk barefoot, hop, and up the stairs

Also: ball in saucer exercise, laser beam from forehead

<<In any one treatment session, the best time to train new strategies is immediately after barriers have been addressed. Thus, when planning time allocation for treatment, allow at least 10-15 minutes to train and practice new postural and movement strategies (i.e. minimum of 15 repetitions for each training task) after manual and other release techniques have been used. Otherwise the window of opportunity created by removing barriers is missed. Manual treatment effects will be most lasting and sustained if new networks are immediately trained by providing the verbal cues and encouragement, manual feedback and facilitation, and appropriate environment to alter all inputs to the body-self neuromatrix

(see Fig. 7.9). Providing the patient with a new experience of their body creates new

positive beliefs and emotions, which will change central pain drivers. Empowering the patient with a sense of control over their body will reduce threat, fear, and change stress-related outputs. All of these factors will feed back into the neuromatrix and provide better physiology for healing, and even more gains. Designating focused training time (where the therapist provides 1:1 feedback and cuing for optimal performance of the task) thus consolidates new maps and builds precision and confidence, so that the patient can continue to use the new networks as they walk out of the treatment session and go about the rest of their day. Lee 2011>>

## Bonus

1. Re-aligning hip joints
2. Hip balance
3. Sub-occipital lift
4. Psoas release
5. Smile (Smoovement)

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Ad 1) This E-cise is for proper pelvic tilt. Stand with your heels, buttocks, back, shoulders, and your head against the wall. Feel both your shoulder blades against the wall. Make sure the back of your head contacts the wall and that you are not arching your shoulders. Feet should be parallel and about hips-width apart. Swivel your feet inward so that the big toes touch, and maintain this angle during the E-cise. Relax your stomach and take deep breaths. If your head won't stay against the wall, roll up a towel or use an inflatable roll and put it between your neck and the wall. Keep your hands at your sides, thumbs facing forward. Hold for 4 to 6 minutes. (Egoscue 2011)

Then gently open the front side of the pelvis a tiny bit

Ad 2) Place your right foot in front of your left, heel touches the toes. Move your hips outwards as much as possible, alternately left and right, feel the automatic activation of the lateral line.

Ad 3) Manually investigate if dysfunction resides in one or more regions, or entire connecting lines then test the response to gentle corrective adjustments of the body biotensegrity.
Sub-occipital lift: simply adding two fingers to the sub-cranial region by the therapist

as a manual cue for the client to add active lengthening tension to his biotensegrity structure often has immediate global, cascading effects. Among them may be a reduction in magnitude of aberrant patterns in all, most or one fascial plane's. The reduction in tone or tension in regions under compression are often visually as well as a palpably apparent. Concomitantly one may observe an increase of normalizing stiffness in regions that were slack and appearing weak or ineffective ("locked long") in maintaining stability (for example, abdominals in the SFL). Often a reduction, if not a complete elimination of pain, ache or stiffness may be reported if the lift is maintained for at least a minute so the client's tissues and fluids have time to adapt to the new positions. Please note that this category of client often has extrinsic eye muscle imbalances that contribute, often times in a major way, to the postural imbalances noted. Redirecting the focus and gaze of the eyes to align with the horizon or more may be needed to complete the re-education, if results are to be long term. However this subject of assessment and treatment is beyond the scope of this book. (Frederick 2014)

Ad 4) P.S.O.A.S.  Primary Storer Of All Stress
open your pelvis at the front
Imagine you have a tail, feel like you pulled it in (maybe a blow a long time ago), move your tail in all directions
Karrash 2012>>

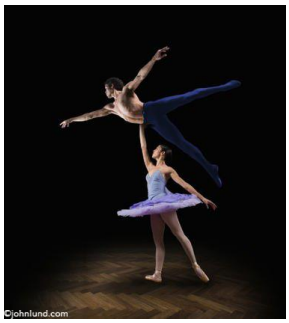
Ad 5) Sammy Davis explaines that Bojangles always used to smile as he danced.

## Het doel

Disorder

Disfunction

Disease

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The musculature of a balanced, peaceful person is mobilized for action; it is not in a state of sustained over contraction, or tension, which tends to pull the body in on itself, cramping joints and restricting movement. Muscular effort is appropriate to the need. The poised person is flexible. Since no chronic muscular tension is holding joints rigid, movement flows reverberatively through the whole structure. The capacity to shift direction, physically and psychologically, is readily accessible when called for.

Everyone is an artist in this sense, and we are capable of shaping our tracks so that they progressively become more eloquent and effective.

It is easy for people to ignore the way they move. We are accustomed to leaving movement in the realm of the unconscious and letting habit take care of the details. Because posture and movement are expressive, life is inevitably an artistic venture that we choreograph as we go along.

If getting out of bed, walking downstairs, driving to work, and sitting at a desk could become more healthful and enjoyable, if they had more of a zest that we love in our games, it they could lift us up rather than just move us along or even drag us down, then the whole fabric of life would be strengthened and enriched.

Nothing is deeper than bone deep. Think of relaxing the bones, and you relax very deeply.