

## Status Quo: Insoles



Being an orthopaedic shoemaker(OSM), handling with medical insoles has become a daily chore, since I started in 1985.

As journeymen/assistants, later as young masters, my colleagues and I always thought would be able to produce the best insoles, if we were able to sample a footsole as closely as possible. With this data, we would be able to produce the best insoles.

In 1998/99 we purchased expensive CAD/CAM-equipment which came very close to our ideas of the perfect sample. Yet, we had to realize that insoles patching with a 1:1 matching of the foot didn't work. They causes pain in the feet, and a big „?“ in our brains! Why? On the one hand, we had been taught in this way, on the other hand, a big industry was delivering products, following this track.

So, we tried(researched?) a lot. It turned out that the so-called longitudinal arch (medial line of foot from big toe joint to heel) accepts little to no supporting pressure. The very opposite was in case: If there is no possibility for pronation, the impact of stepping on the foot has to be deflected otherwise.

In addition, it became clear that with a conventional pad(Pelotte) in its usual shape, tension increased the fascia plantae!

So called „milled“ or shell insoles, with high trays surrounding the back foot, leave few other ways for the foot to position itself other than the insole allows. This fixing could be part of a therapy shortterm. In the long run, the body will bust, causing pain and blockages in upper parts of the body, too.

With Lothar Jahrling, the „Sensomotoric“ insoles were founded. A principle that corresponded very closely to my idea. These insoles had obvious bars in defined pasts, as information for the feet in dynamic movement.

Plenty of treatments showed, that these insoles work very well with taut and flaccid paralytic patients. Also runners, to whom the succes of a rehabilitation aim can be explained, show good acceptance and results. The „regular“ patient rates the insole as „too thick“. The pastly rather pronounced pressure also found no acceptance.

So, we returned to the Basics:

1. Which mechanics are at work in the foot when walking?
2. What does a foot need in/from the shoe, when walking?
3. What´s needed with pathological feet, when walking, from the shoe?
4. Deduction: What shouldn´t happen at all?

In 2006 we joined advanced trainings in *Podo-Orthesiologic Insoles, acc. to Breukhoven(W. Schallmeyer/ Ina ter Harmsel†)*.

Meanwhile, Tom Myers published the *Anatomy Trains*. His book, I must admit, was the key to my first understanding in how our body moves and what kind of mechanisms an organism uses for scure statics and locomotion.

This all was followed in 2014 by further courses with *Lydia Aich & Podoaetiologic Insoles*.

Till now, these both are the best I´ve ever heard concerning posture, statics and biomechanics. It´s also the reason why „bedding“-soles are no longer produced in my store, if I can help it.

Podological insoles are usually very thin(1,5-2mm) and can be inserted into every well fitting,

normal pair of shoes. In the long run, the aim is that they become superfluous. Of course exceptions to the rules do exist.

Pain in the feet mostly signals problems in upper levels of the body. Especially when foot wasn't traumatized directly. With the here offered insoles, static and biomechanic of the body are taken to consideration. The rehabilitatic projection doesn't use physical levers (which operate more via the boney system) but as source for the treatment, we find the changing of muscle tonus, which initiates the correction through the whole statics itself.

With the monitoring method of head rotation the impact itself, therapy process and treatment effect can be shown and documented quite well.

What fascinates me about these insoles is that after successful treatment, a life without insoles can be possible again. Experience with Teenagers showed me that after 5-12 weeks that the insoles are obsolete. Grownups suffering from skoliosis, knee- and ankle joint disease, as well as hip based dysbalances, see the offerd insoles as „tops“. Elderly patients are also quite content with these insoles. (Feedback: I'm able to walk significantly longer and pain is less or gone) A further benefit is that in case of heavy weight patients: nobody needs to worry about to the correlation of patients weight, insole material and impact.

Familiar diagnoses such as skew- flat- splayd foot, or metatarsalgy possibly reflect bodily reactions from dysbalances originating in upper aereas.

Taking this into consideration, plantigrade erecting of the foot on its own, as done with classical insoles, doesn't make sense in the long run. But, if one clarifies what is really „going on“ in the system, the body can return to its healthy physiology. These „new“ insoles help the body in doing so and, in the best case to become superfluous over time.

By the way: Health insurances that way do not have to pay for lifelong insoles treatment, border elevations or reduction support.

### **Differences to „normal“ insoles:**

Wellknown classical, supporting or bedding insoles follow the idea of:

- erecting with levering support( longitudinal arch and transverse arch support,...) and
- bedding or pulling off material and padding(decompression, softbedding, a.m.m.)

The insoles I offer here use the present, bodily muscle tention and change it, by plantar setted information/manipulation. This returns normal biomechanical work to the organism. The fact, that the organism manages the change of muscle modulation by itself allows hope of real rehabilitation.

This can be proven with a better head rotation, which stems from a clearly more workable and perpendicular balance. HMSU serves here as a reliable tool. Simultaneously this kind of testing, depicts, that all vertical muscle chains(Tom W. Myers®) between head and feet are included in this supply.

### **Procedure for Insole supply:**

Testing, diagnosis and consultation take about one hour.

1. First, a dynamic footprint is done. This means a foot print while walking. Already, with the different colourintensities, we'll find hints for possible areas of problems. Together with the patient these points are to be identified, discussed and rated.
2. Now, inhibition or pain are to be described and located by the patient.

3. A further step is the notation of the current posture. For this, the position of the head, shoulders, pelvis, spine and legs, knee and feet is recorded. This leads to more information how the insoles have to be set off.

4. A status quo mensuration is done by a maximum turning, left and right of the head. This serves as the **basis** for the further procedure!

5. Now we place little bars on particular places under the patient's feet. The bars range between 1-4 millimeters height. With this I'm going to change not only the statics of the feet, but **am** also aiming to the whole statics via muscle chains. The goal is to get more score with the turning of the head. That's my proof to the „benefit“ of the insoles. How the insole and head rotation correlate, will be explained later.

6. This kind of testing raises additional questions such as, occlusion of teeth, or the vision has to be tested, too! If we get results to this, we try to ask relevant specialists like dentists or optometrists for support in getting a better therapy's aim.

7. Afterwards, I manufacture the insoles and hand them to the customer. Condition is a pair of shoes with good fitting and good function for the duration of use. Without that, it won't work! Consultation for this could be very intensive, because a good shoe for the industry or fashion might certainly not be a good one for biomechanics!!

The insole is very slim (~2mm). Only the inserted bars arise on allocated points.

8. After 4 to 6 weeks have passed, the insoles get a further check. And, if need be, a changing of the bars.

9. After further, say 6 to 9 month, the insoles are removed from the shoes. So, a few days later, if someone feels fine as usual, everything is ok. And, yes, finally expected thing is to be able to run one's day without insoles again. If you should find that walking with the insoles is much more comfortable, or well known pain returns, repose insoles in your shoes. Maybe you got a second pair, with new conditions.



### Now:Connection between Head Rotation and Insoles:

The insoles were produced by the help of HMSU(HeadMountedSupport(Unit))-device, measuring the head rotation. You see every alternation to the head rotation, if you variate the bars of the insole. So change, brought by the bars is measureable, replicable and easily documented.

- Proposition: A healthy and painfree body is able to move without limitation!
- Derivation 1: Handikaps, blockages and pain restrict normal movement, no matter on which level of the body.
- Derivation 2: Shoes and/or insoles, socks, injuries of any kind, have positive or negative effects to the mobility of the body.
- Conclusion: When „manipulations“ at/under the feet are set, you can prove the changes to the static, if they are clearly measurable in the top-joint(atlas-skull base).
- More accurately: Everything that „happens“ at/under the feet, has an effect through the biomechanical systems(skeleton, joints, muscles and fascia) from the bottom to the top. (See: Tom Myers Anatomie Trains, et all.)

This also supports my view of pain with the feet. Casually speaking: Unless someone hurt on the foot directly, or was wearing „bad“ shoes, the reason for the evil is likely to be found „above“.

HMSU is capable of showing whether the set therapy leads to better agility. This way, money could be saved by detecting treatment that does not achieve the desired results.

Having success with insoles and shoes, thrills me. It´s really pleasing to see patients with better agility and health related quality of life.

But often, additional knowledge is needed. Joint efforts with osteopaths, physiotherapists, doctors or dentists lead to lasting success and good rehabilitation. A collaboration for the wellbeing of patients, which I appreciate, too.

#### Scientific Base, Literature

- There is plenty of literature and studies to this kind of insoles:
  - **Dissertation, Katrin Riedlinger:** *Der Zusammenhang zwischen The connection between temporomandibular dysfunction and pain in the locomotor system. A cross-sectional study in patients with neuromuscular diseases, 2008 (pages 71/73)*
  - **Dr. Wolfgang Laube:** *Sensomotoric system: Detailed physiological knowledge for physiotherapists, 2009, Thieme publishing house*
  - **Dr. Paul Ridder, CMD, 2019, 4th edition, Elsevier-Verlag (An orthopaedist writes about jaws and bite!)**
  - **Judith Weisz,** *Was ist... Podo-Postural-Therapie? DO - Deutsche Zeitschrift für Osteopathie, Georg Thieme Verlag KG, Jan 1, 2014*
  - **Antje Schramm,** *Dissertation, TU-München, Lehrstuhl für Bewegungs - und Trainingslehre. Empirische Untersuchung zur podo-ätiologischen Einflussnahme auf funktionelle Asymmetrien des menschlichen Körpers (eine Längsschnittuntersuchung bei Frauen und Männern ab dem 51sten Lebensjahr).*
  - **Peter Dankerl, Andrea Kerstin Keller, Lothar Häberle, Thomas Stumptner, Gregor Pfaff, Michael Uder und Raimund Forst:** *Rasterstereographic evaluation. Effects on posture through various neuromuscular afferent stimulations and proprioceptive insoles: <http://poi.sagepub.com/> Prothetik und Orthetik International. <http://poi.sagepub.com/content/early/2014/10/29/0309364614554031> 31.10.2014.*
  - **Dr. Jürgen Dapprich,** *Interdisciplinary Functional Therapy, TMJ and Spine, 2nd edition 2019*
  - *and much more.*

- These insoles are also named and described in the specialist book for orthopaedic shoe technology:
  - **Orthopaedic shoe technology, Baumgartner, Möller, Stinus, c. Maurer Verlag, 3rd edition, p.54/55.**

*The term "neurological insoles" is unfortunate, because the manipulation instead refers to the muscle tone and thus the proprioception of movement initiation and deflection is changed. The fact that the change is stored in the centre of the movement is, of course, unlikely. But this would happen with any manipulation.*
  - **Still on the subject: Chapter 20, Posture and posture regulation, p. 136ff.**
- By using the HMSU, proof of effectiveness is created for each patient, automatically and individually, during the fitting process. This can also show what kind of process takes place, may be for a longer time(1,2,3... years)
- Hardly any studies exist for the well known „bedding“ soles. (Exception: Heel spine and diabetical things. Usually concerning preasure under the feet!)  
We have known them for more than 100 years but nothing substantial has changed. Only production process has become more technical, like CAD/CAM, or back scann. These insoles have authorisation with massive inflammation or big traumatic disease. For recovery of good mobility they have to pass after 6-8 weeks and get replaced by „active“ working soles.

### HMSU: Head-Mounted-Support-Unit:



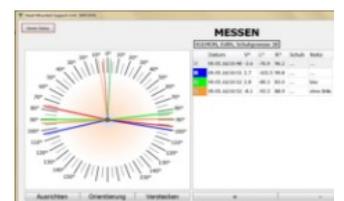
Up to now, insoles were expected to fade pain or cause better statics. But deep proof is missing yet! Only in special disciplins like diabetic or heel spurs treatment a mostly positive change could be stated, shown via distribution of sub plantar preasure.

With HMSU now we have a technique which is sffective to the entire statics. So, when there is manipulation at/under the feet, someone could proove changes in statics, when these effects are clearly measureable via top joint. Positive or negative.  
Of course this also counts for traumatic disease injuries, a.s.o....



Like wise this applies with lesions coming from „above“ and leading to less statics or less mobility. Less head rotation as before will be found after nociceptive occlusion. Maybe the concerning side is shown as well, but this has to be proved, yet.

Serial examinations would be possible. With the fact of personal individuality to each of us, I expect, only a kind of trend will be set. There are too many different parameters: Heights, weight, bodyshape, constitution, genetic impact, food, dealing with everyday life, a.s.o....



It´s important to me that people can be advised in a way to buy shoes, which don´t handicap or cause long term evil. Same time, I´m pointing at insoles in shoes to be ejected, which are more of a bodily injury than a helpful additive.

