



CHRONIC PAIN DOCUMENT

INTRODUCTION

Initially our product (**e-flip™** by **equilibras™**) was invented out of frustration of seeing patients against better advice continuously wear unsupportive footwear such as flat-sole flip-flops.

Market research of current footwear showed some serious shortcomings in the majority of footwear. This has most likely arisen from a lack of appreciation of this issue's complexity and multifactorial nature **(1-30)**.

Let me explain:

Most footbeds these days have a very simplistic contour. They usually have a medial arch contour with some material softness for simple shock absorption.

Whilst custom-made orthotic footbeds are more sophisticated in their support they too appear to often lack the full spectrum of vital features, especially adequate shock absorption.

Mostly this appears to be due to a lack of proper appreciation of the body's neurophysiological feedback system. If we

mostly emphasis alignment we will always struggle to deal with the current foot crisis.

Foot problems and their far-reaching effects on the body (kinetic chains, neurophysiological stress, psychosocial wellbeing) are happening in pandemic proportions **(31)**. - Why? - It has not been that long in human history since we started living our (urban) lives predominantly on flat, hard surfaces and mostly in shoes. This has resulted in severe understimulation of our foot soles and in fact feet as a whole. The consequence of this lack of sensory afferentiation has been poor brain mapping, which has led to poor fine motor control of the foot, followed by deterioration of the foot structure as can be seen today **(1-9)**.

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As we have come to understand chronic pain is not necessarily due to noxious stimuli from injured or diseased tissues. Rather it is a complex picture being influenced by a multitude of factors including psychosocial influences and early intervention after acute pain. For instance poorly managed acute pain paired with psychosocial influences can lead to central

sensitization of the nervous system. These neuroplastic changes (brain mapping) can then evoke discomfort from relatively innocuous stimuli leading to chronic pain (hyperalgesia)**(32-53)**.

It has been demonstrated that *interdisciplinary management*, which emphasizes *functional restoration* produces the best outcomes in the management of chronic pain patients **(32)**.

equilibras™

Let us therefore look at the various qualities and benefits that **equilibras™** offer in order to support chronic pain sufferers:

This simple looking flat-sole footbed (**e-bed™**) or flip-flop (**e-flip™**) is packed with features never seen before in a flat sole and rarely found in its entirety even in custom made orthotic foot beds.

MAKEUP. It is a bilaminated **polyurethane** construction with an invisible inbuilt orthotic contour. The upper layer is relatively soft whereas the bottom, contoured layer is firmer. This makeup gives it some unique qualities.



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Essentially the sole consists of:

- A **triple arch support**.
- A **rearfoot control** (heel inversion)
- A **mid-foot locking mechanism**.
- **Windlass locking mechanism**.
- A **dual shock absorption system**
- **Anti-fatigue properties** (!!) (Like the anti-fatigue matting, which is now used extensively at workplaces around the world
- High quality **sensory afferentiation (brain mapping)**.

BENEFITS 5 essential qualities need to be considered in shoes when dealing with chronic pain prevention and amelioration.

- Good *alignment* via triple arch support **(76)** and rearfoot control **(75)** preventing excess pronation/supination
- Great *control* by inducing the foot's natural mid-foot locking mechanism **(57,62)** as well as facilitating the windlass locking mechanism **(54-74)**, creating stability with low tissue stress.
- High quality *sensory afferentiation* leading to detailed brain mapping is crucial in the maintenance of the foot structure and in finemotor control **(1-9)**.
- A *dual shock absorption (dispersive/vertical)* effect in line with

the natural architecture of the foot **(10,11)**.

- An *anti-fatigue* effect lowering cardiovascular strain and general stress (as shown in extensive research in the anti-fatigue matting used now around the world) **(24-28)**.

All these qualities are essential in the prevention of foot problems as well as problems throughout the body and thus minimize the risk of developing chronic pain conditions.

The very same qualities are also important in assisting existing chronic pain conditions by minimising a neurophysiological stress reaction of the body and leading to a feeling of well being and more energy.

Furthermore the flat **e-sole** does not have to be fitted nor worn in. It is very comfortable and 4 to 10 times more durable than standard rubber or EVA products.

Since polyurethane has *anti-bacterial* and *anti-fungal* properties it is also useful in minimizing foot infections especially important in chronic pain sufferers with immune depression or predisposition to sores, such as in Diabetes.

No wonder when testing **equilibras™** in a double blind clinical trial for neurophysiological stress reactions, subjects wearing **e-flips™** performed better than the control group tested at rest and showed no neurophysiological stress reactions whatsoever **(10,11)**.

A preliminary study performed at a medical school involving trigger-points as measured by a pressure gauze algometer has also yielded very encouraging results when wearing **e-flip™**.

The feedback from current customers has been amazing and often disbelieve at the improvements of pain just from wearing a simple flip-flop even for relative short periods of time.

equilibras™ are an **orthotic neurophysiological device**, a footbed combining for the first time essential orthotic qualities with comprehensive neurophysiological properties in a fashionable flat-sole shoe. It is the full package and we believe the best choice to date in medical footwear designed to support health and prevent or alleviate chronic pain conditions.

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