

IMPROVE YOUR HEALTH AND BOOST  
YOUR PRODUCTIVITY AT WORK

Many adults spend over 11 hours a day sitting. Understand why experts believe prolonged sitting is the new smoking.

# THE SITTING EPIDEMIC

By Daniel Angelini

**The Sitting Epidemic**  
**Authored by Daniel Angelini**  
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## **Professor Avni Sali**

MBBS PhD FRACS FACS  
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It is with pleasure that I write the forward to Daniel Angelini's book: The Sitting Epidemic.

We are at work for at least a third of our day during our working lives, and many of us sit for a majority of this time. Hence the importance in understanding whether there are any healthier options to sitting. The human musculoskeletal system is a complex structure which can also influence the way our brain functions. In order for us to move freely and without discomfort or pain in our daily lives, we need a strong, healthy musculoskeletal system to support us.

Daniel has a strong interest in researching evidence relating to standing desks and has not only produced this text, but has also developed the innovative MOVI Standing Desk. This book enables people without expertise in this area to understand and appreciate the facts relating to the benefits of standing rather than sitting at work.

Daniel has thoroughly researched the literature in this field and provided references in each chapter. He has also communicated with leading practitioners, scientists and educators to provide another dimension of expertise. This book explores the issues at play with our sedentary modern lifestyles, health implications, working environments and what we can do about it in a practical and effective manner. It contains a wealth of information with advice on best approaches to the sitting epidemic.

Much research has now proven a link with many chronic illnesses and our increasingly sedentary lifestyles and general lack of movement. The environment in which people work is a very important contributor to the health of that person. Apart from the physical environment in which people work, it is very important that they work in a friendly, supportive work setting.

As a consequence of much research in this field, people and employers alike are seeking better ways to promote healthy working environments, and this book is an important source for providing this information.

Daniel has utilised all the best available information from all sources to develop the MOVI Standing Desk, as a very ergonomic and spacious standing answer to the sitting epidemic.

I invite you to 'get up' and join Daniel on this pathway to better wellness.



## **Daniel Angelini**

Dreamer, inventor and author of this book

Imagine a world where people become healthier and stronger by going to work. I have. And I have not been able to let go of this idea since.

I want a world where people become healthier and stronger while working, a world where, as a society, we are healthy and happy. That is why I have written this book.

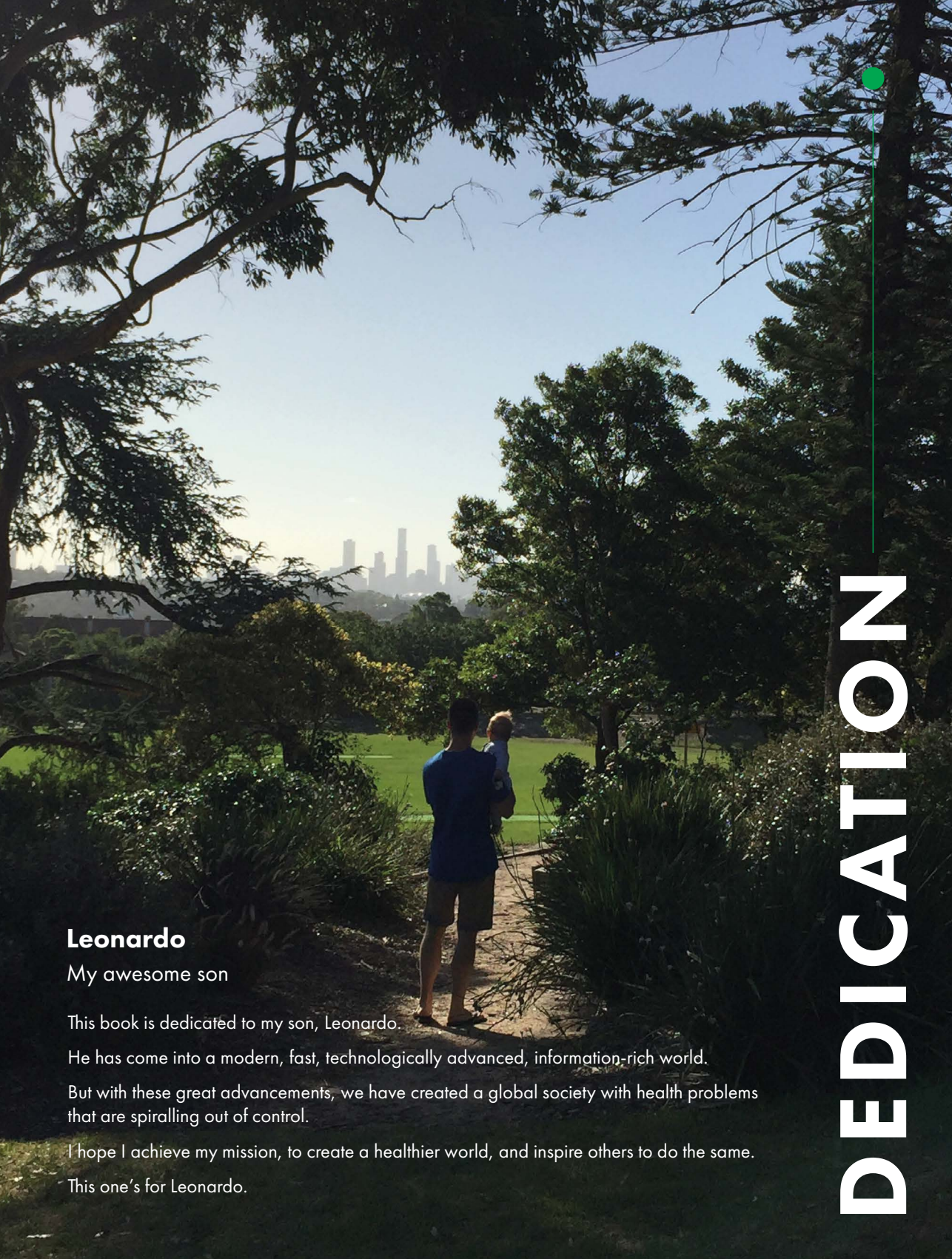
My mission is to help people live longer lives of better quality due to better health, through drastically improving their health while working.

This is my story, my research, and my passion.

Thank you kindly for your support.

I hope that it brings you better health.





## **Leonardo**

My awesome son

This book is dedicated to my son, Leonardo.

He has come into a modern, fast, technologically advanced, information-rich world.

But with these great advancements, we have created a global society with health problems that are spiralling out of control.

I hope I achieve my mission, to create a healthier world, and inspire others to do the same.

This one's for Leonardo.

**DEDICATION**

# ABOUT THIS BOOK



This book includes interviews, facts, tips, and stories.

When I undertook the research for this book, I not only wanted to learn from medical journals and studies, but from professionals who work in this field every day. Having done an extensive amount of research, I have extracted the key facts from thousands of pages of studies. To make this book practical, I have gathered and highlighted the best tips you can implement today.

I have read over 100 medical journals, many of which are referenced throughout this book, interviewed 15 health expert professionals and read countless articles. I have been researching and working on this for three years, and throughout the book share some experiences that have shaped the journey.

This book presents you with a concise snapshot of the research, facts and recommendations to improve your everyday health and wellbeing in the workplace.

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# CHAPTERS

1





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STANDING  
UP FOR  
YOUR  
HEALTH

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## INTRODUCTION

My Dad is a remarkably active and strong person who regularly goes to the gym, swims and boxes. He's a finance professional and like many of us, spends an average of 10 - 12 hours a day sitting; at his desk, in meetings, driving, during meals, and as downtime in the evenings.

In 2011, at just 56 years old, he underwent spinal surgery due to acute lower back pain. The procedure was called 'lumbar laminectomy'. It's when there is a prolapsed intervertebral disc, meaning that the 'padding' between two discs in Dad's lower spine had worn out; intervertebral discs act as shock absorbers in our spine. The surgeon needed to cut away some bone, bone spurs, and ligaments to allow for decompression.

My brother is also extremely fit, at 34 he's continually putting me to shame. He trains 4 - 5 times a week doing a mix of cycling, running, swimming and weights, always with another triathlon or half ironman months away. He works with my Dad in finance, and therefore sits for over 8 hours everyday at work, plus he sits while driving, eating and relaxing at home. While he is athletic and fit, like my Dad he suffers from lower back pain.

For two very fit guys who exercise constantly, the fact they both suffer from acute lower back pain seems counterintuitive to the benefits you would expect from exercising so often. Through research I will share later on in this book, it is very clear why they experience this pain.

My painful experience wasn't with my lower back, it was acute sciatica in my left leg. Acute sciatica is the pinching of a nerve that runs from your gluteal all the way down your leg, right down to the middle of your foot. I was 25, it was winter, and I wanted to step up my fitness. So I started running 2 - 3 times a week. After sitting all day at work, taking the train home, and with little to no warm up, I would run 10 kms at a decent pace. After 3 months, I began to feel a pinch down my left leg. It became too intense to run. I tried everything to treat it; physiotherapy, osteopathy, steam rooms, yoga and acupuncture. The problem was that after sitting all day my muscles became disengaged, weak, so when I would jump into challenging physical exercise for 45 - 60 minutes at the end of the day it would aggravate the problem. Plus sitting all day long placed additional pressure on my spine, which was making things worse. It took almost 2 years to heal.

Over the past few years many health professionals and health institutes have compared sitting for 12 hours a day to smoking. Your risk level of being diagnosed with heart disease and cancer are comparable if you're a chronic sitter or a chronic smoker. Thus if you have a job where you're sitting for 8 hours a day 5 days a week, plus all the additional sitting time outside of work, you're doing a comparable amount of damage to your body as smoking. It's a scary discovery, but also odd that it's taken us so long to realise. Sedentary behaviour is causing a health epidemic - and we must start talking about it.



AND ME

MY BROTHER

## MY INTEREST IN HEALTH

I've had an interest in health since I was 15. I had a bad snowboarding accident that tore ligaments in my left knee, leaving me virtually unable to walk. Some of my friends had experienced similar injuries and had taken the traditional approach of surgery. They were on crutches for several months and unable to play sport for almost a year. That didn't sound like fun to me, so I explored an alternative approach with acupuncture. I still remember it clear as day... The doctor put 18 acupuncture needles into my left knee and surrounding ligaments, then attached the end of each acupuncture needle with a thin cable that connected to a machine which would shake every 20 seconds, sending a tremor through the acupuncture needles. It was probably the most painful 20 minutes of my life. But miraculously at the end of the treatment I was pretty much walking out of his clinic. He gave me some strengthening exercises to do for the next two weeks, after which I was fully recovered. It fascinated me that this worked so much more efficiently and effectively than surgery, and is where my interest in health kicked off.

Fast forward to when I was 27 and being admitted into hospital due to extreme stomach pain with no obvious cause. I was in a great deal of pain that even after taking high-grade painkillers it was unbearable. I was in hospital that night, my wife-to-be beside me, gazing at the blank ceiling and constantly repeating to myself, "I never want to end up in here again". Lying on that hospital bed shocked me into fully grasping that if I didn't have my health, I didn't have anything. My passion for preventative health intensified there and then.

## I'M RESEARCH OBSESSED

I've always been one to research obsessively to build my own informed view on a myriad of different topics, whether they be in health, tech or household items. I'm the kind of guy who, upon first hearing that something is really good for you, spends a ridiculous amount of time researching it to find out for myself.

A good example is green tea. When I heard how good it is for you (incredible antioxidant benefits and it's shown to help prolong life), I spent hours researching why, how, and where the best green tea comes from (ceremonial grade organic Matcha from Japan, around AU\$45 per 100g). Organic Sencha is also great for everyday drinking. After visiting China, I transitioned to organic Jasmine Dragon Pearl green tea from the mountainous Fujian province. From what I can conclude, these types are considered to be the best green teas in the world.

I've done this with many things, like...

- » **Naturally derived vitamins and green powders, which are absorbed significantly better by your system compared with synthetically derived supplements**
- » **Goji berries, which contain lycium barbarum and boost your immune system**
- » **Dark chocolate, which stimulates concentration and helps with cognition**
- » **Grape seed extract, which is great for your skin and anti-aging**
- » **Acai, which is a high potent antioxidant that is good for many aspects of your health**

So naturally, when my dad, brother and I all experienced unexpected physical health issues, my research into the root cause began.





## FACTS I DISCOVERED WHEN I STARTED RESEARCHING

1. Many office workers spend **11+** hours a day sitting (1), which significantly increases their risk of heart disease, diabetes, obesity and cancer. Some studies have suggested that prolonged physical inactivity can increase heart disease risk by as much as **147%** (2).
2. Physical inactivity is the 4th leading risk factor of death globally. **6%** of deaths globally result from physical inactivity (3). This is more than lung cancer and HIV combined. These are preventable deaths and it seems like very few people are taking it seriously.
3. **1 in 6** people have suffered lower back pain in their life (4) and sitting puts **40%** more pressure on your spine than standing (5). Chronic lower back pain is becoming more prevalent from the age of 20+ years onwards and is costing the world billions.
4. Exercise and movement are vital for good health as they significantly reduce our risk of cancer, heart disease, diabetes and obesity. One study proved that regular exercise can reduce cancer risk by as much as **50%** (6).

**11 +** HOURS SITTING A DAY IS DAMAGING

**147%** INCREASED RISK IN HEART DISEASE

**6%** MORE DEATHS DUE TO INACTIVITY

**40%** MORE PRESSURE ON YOUR SPINE

**50%** REDUCED CANCER RISK WITH EXERCISE

## BUILDING MY FIRST STANDING DESK

While researching in 2013 I came across a Lifehacker article (7), which is still popular today. It explains how to use cheap IKEA products to construct a desk add-on that would allow you to stand up while you work. I immediately rushed to IKEA to test it out: I used a square side table (the 'Lack'), two plastic brackets, and a shelf. Altogether the cost was \$40. I measured my arms at a right angle, my height, and the base desk height and assembled my DIY stand-up desk platform. I began using it at home as I didn't yet have the courage to bring it into the office for fear of judgement. It was a DIY desk made on a budget after all.

Like most things that are DIY on a budget, it had its downfalls. My desk add-on was really bulky, wasn't adjustable, wasn't ergonomic, and didn't have a great deal of space for me to have notes and papers around me while I worked. Most annoying was that every time I wanted to sit down I would have to disconnect everything, find a spare desk space and work off my laptop screen rather than my large external monitor. Despite all of this I was proud of my creation, it was good enough to get me started.

A few months later I landed a job with Uber HQ in Australia. Being such an innovative and fast-growing startup I thought to myself, "if I'm ever going to bring something different into work then surely a San Francisco tech startup would be the place". So on my third day, I brought in my bright orange IKEA DIY standing desk. I was a bit nervous, being the 'new guy' particularly when you do something outside the norm but I was intrigued to see what they would think of my health hack. Most of the team took an initial interest, asking a few questions, but that was it. However, over the next few months of watching me use it, many started constructing their own. They used boxes, crates, or any type of object that would create two platforms of distinct height on their existing desk; one platform for the keyboard and one platform for the monitor. Later that year when I visited Uber HQ in San Francisco, I saw they were also experimenting with standing desks, which confirmed that this was becoming a 'real thing'.

Six months created enough interest across the team to consider buying some 'real' standing desk attachments (a product that goes onto an existing desk that allows you to sit and stand while you work). We were moving into a new office and decided to go ahead with the purchase. And by the end of the following year, every Uber office in Australia had standing desks!

However, I noticed that not everybody in the office was using them. Some people stood all day everyday and loved them (me included), however the majority only used them occasionally, and some didn't use them at all. I wondered why. So out of pure curiosity I asked the team what they thought about standing while working, why some weren't using their standing desks, and what the problems were.

## WHAT I FOUND WERE THREE THINGS:

- » **Ergonomics. Ergonomics is essential to get right, and the sit-stand desk platforms we were using simply weren't ergonomic. We had a lot of tall guys in the office (many over 6', some as tall as 6' 5"). If you're 5' 11" or taller, which is quite a common height, you needed to use reams of paper and boxes to lift your monitor or keyboard to get it to the correct height. This quickly becomes clunky and uncomfortable, and looks cluttered.**

- » **Health.** People didn't know much about the exceptional health benefits, they viewed it as just another health fad. Though they had heard in general that it was good for you, and logically it made sense that being on your feet more was better than prolonged sitting, no one really knew why or how or if it was medically validated. There was an obvious lack of information.
- » **Practicality.** Lastly, the work space wasn't that accommodating. The sit-stand platform had a small and restrictive keyboard platform, which made it difficult to spread out comfortably and have the flexible workspace that you needed when it was raised. It was easier for some of the team to keep the sit-stand desk platform lowered, so they could use some of the space around them on their standard desk.

### FROM INTRIGUE TO DEEP RESEARCH

While gathering insights from my team at Uber I was researching facts about standing, sitting, physical exercise and sedentary behaviour online. However these sources were not credible enough so instead I sourced substantiated medical research to get the real facts about sitting and standing. The findings were fascinating.

I was reading medical journal publications, workplace trial results and case studies from all over the world. The reality the research depicted was quite frightening. The fact we spend 11+ hours a day sitting contributes to many of the common problems we see in society today: heart disease, cancer, diabetes, obesity, and lower back pain. I'll go into these facts in more detail later, and give you the references as we go. Everything stated in this book is substantiated with medical research.

### MY MISSION TO MAKE A DIFFERENCE

Minimising daily sitting time and regularly moving and exercising combats this modern day health epidemic. But, almost every professional in the world today sits in front of a computer for the majority of their working day. While researching, I got thinking about what difference I could make to the world. My vision is to create a cultural change; health hacking the workplace by creating healthy working habits, all backed by research.

And so I was at a crossroads. Do I leave my job at Uber, the fastest growing startup of all time, to make my vision a reality? After months of asking myself this, I realised there was only one answer: Yes. It was an enormous leap of faith.

Since then, I have dedicated all my time to finding solutions, creating awareness and educating people about this problem that office workers face every day within our workday. As a result, I have worked tirelessly to design and build what I believe is the most ergonomic and spacious desk top platform available. And I have written this book to educate and inspire change.



# WHERE IT ALL BEGAN

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Sitting is the most common sedentary behavior of adults; people can sit for many hours at a time every day of the year. However, despite the ubiquitous nature of prolonged sitting in modern society, it is possible that we have not yet... realized the potential for dire future consequences...

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2





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# THE EXPERTS

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# MEET THE INTERVIEWEES

As part of this journey, I have connected with a wide range of highly qualified and experienced health professionals to provide you with their own insights, tips, and research, which will help you to enjoy better health.

Their contribution to this book provide a deeper understanding of the health issues associated with physical inactivity and how this correlates with our current working environment and modern lifestyle.



**Matthew Bate**

*Former AFL Footballer & Co-Founder  
of 365 Days of Wholeness*

*BSci MSci (holistic nutrition), PhD,  
Certified Holistic Nutrition Practitioner*

Matt is a professional athlete. He played over 100 games in the AFL (Australian Football League) between the years 2004 and 2012. He now practices professionally as a Certified Holistic Nutrition Practitioner.



## Bob Boyd

*President of the National Wellness Institute of Australia*

*OAM, FACHPER, LMQFHA, NWISLC, CWHC*

Bob has over 40 years experience in Personal and Corporate Wellness. He currently sits on the National Wellness Institute (USA) Board of Directors and has Chaired many health organisations in Australia.



## Catherine Dunlop

*Psychologist & Life Coach*

*B.A Psych, Stats. Grad Dip Counselling Psych., Post Grad Dip Hypnotic science*

Cate has 23 years of experience in counselling individuals in relationships, anti-aging, psychological resilience and emotional fulfilment across several medical centres.



## Dr. Piers Bubbers

*Osteopath and Osteopathy Australia Member*

*B.App.Sci. (Comp Med), M.Ost., B.Sc.*

Piers offers a uniquely individualised approach, influenced by more than a decade of yoga and meditation practice. He focuses on root cause identification and treatment.



## Ryan Ebert

*Physiotherapist & Director of PHW Group*

*BSc. Physio (Hons), Dip Bus, Dip Mgt*

Ryan is a Physiotherapist specialising in Occupational Health. He is the Founder of PHW Group, an Occupational Physiotherapy, Workplace Training and Office Design company.



**Dr. Lina Engelen**

*Research Fellow at The University of Sydney*

*PhD, MSc*

Lina has studied physical activity and workplace health, with a specific focus on how individuals can be less sedentary and more physically active utilising different types of workplace interventions.



**Mark McGrath**

*Sports Performance Coach*

*B Ed, Grad Dip in Ex and Sp Sci*

Mark has worked closely with several State, National, International and Olympic level athletes. He has spent 15 years experimenting with freedom of movement by understanding forces on the body.



**Dr. Ian Gillam**

*Exercise Physiologist and Sports Nutritionist*

*BSc (Hons), MSc, PhD, Dip Phys Ed, AEP, ASP, FASMF, ESSAF*

Ian has over 20 years experience as an Exercise Physiologist and Nutritionist, providing services to elite athletes and treating chronic diseases. He is currently the Sports Nutritionist for Tennis Australia.



**David Hall**

*Group Facilitator, Physiotherapist & Director of PHW Group*

David is co-founder of PHW Group, an occupational physiotherapy, workplace training and design company. He is National Chair of the Australian Physiotherapy Association (APA) Occupational Health Group.



## **Associate Professor Kylie O'Brien**

*Director of Education and Integrative Chinese Medicine at National Institute of Integrative Medicine (NIIM)*

*BSc(Optom), BAppSc(ChinMed), MPH, PhD (Chinese Medicine)*

Kylie has 30 years experience in the health field, originally as an optometrist and during the last 16 years in the field of Chinese Medicine as an educator, researcher and clinician. She conducted the world's first comprehensive investigation into the reliability of the Chinese medicine diagnostic system.



## **Professor Neville Owen**

*Head of the Behavioural Epidemiology Laboratory at the Baker IDI Heart and Diabetes Institute, Distinguished Professor in Health Sciences at Swinburne University of Technology*

*PhD*

Professor Neville Owen is one of the world's foremost researchers of sedentary behaviour, having co-authored several related studies relating to diabetes, heart disease and cancer.



## **Dr. David Oehme**

*Neurosurgeon & Spine Surgeon*

*MBBS(Hons) PhD FRACS*

David is a neurosurgeon and spine surgeon, extensively trained in the treatment of complex spine conditions. His PhD research has been presented in Australia, USA, Europe and Asia.



## **Osteopathy Australia**

*Osteopathy Australia's Policy Officer-Clinical Excellence, Peter Lalli and Occupational Health Clinical Leadership Committee - Dr Josephine Bayles (Osteopath), Dr Peter Baziotis (Osteopath), Dr Stephen Lee (Osteopath), Dr Heath Williams (Osteopath).*

Osteopathy Australia are the peak body representing the interests of osteopathy as a profession and consumer's right to access osteopathic services, representing over 2,000 practicing osteopaths across Australia. Osteopathy Australia is a member of Allied Health Professions Australia and the Osteopathic International Alliance.



## **Jonni Pollard**

*Meditation teacher and  
Co-Founder of 1 Giant Mind*

Jonni is an internationally recognised meditation teacher who has studied and taught meditation practices for over 20 years. He has been invited to present and collaborate with His Holiness the Dalai Lama, Sir Richard Branson, Deepak Chopra and Sri Sri Ravi Shankar.



## **Shimon Tchobutaru & Jacqueline Brumley**

*Iyengar Yoga Instructors  
50+ years combined experience*

Shimon and Jacqui together have over 50 years of collective yoga experience, having undertaken extensive training in different styles of yoga in Australia, Europe and India.



## **Michelle Ross**

*Clinical Nutritionist  
BHSc, Nutritional Medicine*

Michelle has a passion for helping people of all ages achieve optimal health and wellness, by using "food as medicine". She currently practises at The Naturopathic Collective of Australia.



## **Dr. John Tickell**

*International health, wellness and longevity expert  
MBBS*

John practiced as a GP, obstetrician and sports medicine specialist, and is an international speaker, best-selling author and television personality. He has extensively researched the habits of the longest living, healthiest people on Earth.



# 3



THE  
FACTS



# THE FACTS ABOUT SITTING AND STANDING

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There are numerous medical journals and publications that clearly document the risks of prolonged and uninterrupted sitting. Our modern, urban lifestyles, together with a significant reliance on technology and continued urban population growth mean us, as humans, are becoming less and less active. Physical inactivity is extremely damaging to our health. Our bodies were designed for movement. The benefits of standing, moving and regular physical activity cannot be overlooked. On the following pages are some key facts about sitting and standing.





It would appear that being  
sedentary is almost unavoidable  
in the modern world!

*Michelle Ross*



**LISTEN UP**



Several benefits are experienced by our bodies when we stand, as opposed to when we sit. The information in this illustration incorporates findings from researching 10 medical publications. This got me started on my research journey.

### IMPROVED CIRCULATION

When standing with correct posture, your chest is open and your lungs have greater capacity for deep breathing.

Sitting and hunching forward can reduce your lung capacity, restricting your breathing and the amount of oxygen circulating in your blood. (3,8)

### BACK STRENGTH

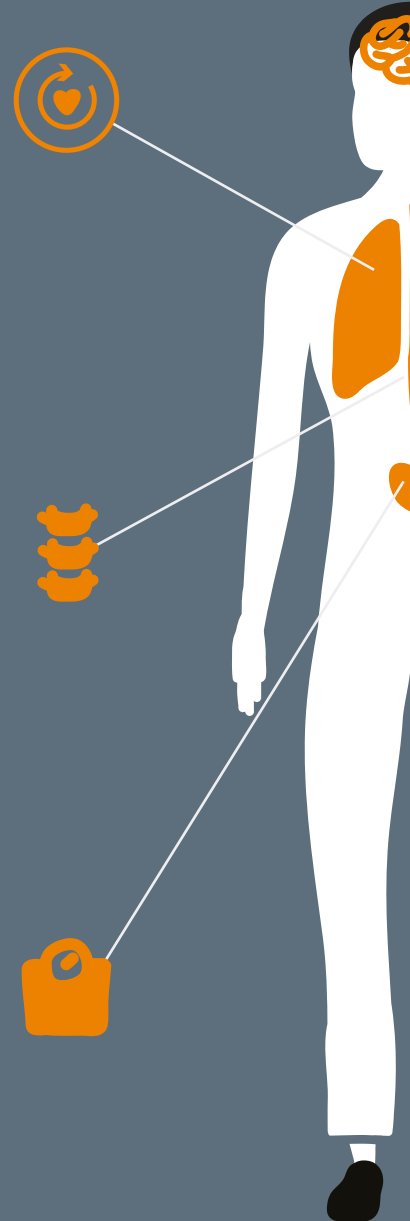
Standing for regular intervals helps to strengthen your lumbar spine making you less prone to back injuries.

Sitting can place increased and uneven pressure on your spine, which can lead to wear and tear of your spinal discs and spinal muscles. (5,6)

### FAT BREAKDOWN

Introducing short intervals of movement and standing to your workday, improves blood flow, boosts metabolism and helps burn fat.

When sitting for extended periods of time, your body burns fewer calories, reducing your ability to burn fat. (6,8)





### **BRAIN PRODUCTIVITY**

When you stand and move, blood flow to your brain increases. This stimulates brain function and helps you to focus.

Being sedentary reduces blood flow to the brain and oxygen levels in the blood, making you less alert and diminishing your concentration. (1,2)



### **LONGER LIFE**

Moving and standing regularly throughout the day improves your fitness, contributing to a long and healthy life.

Being sedentary from prolonged sitting is a risk factor for premature death, independent of how much physical exercise you do. (4,10)



### **PREVENTING DISEASE**

Incorporating more movement and standing into your day helps your body to normalise blood sugar levels and reduce your risk of chronic illness.

Prolonged sitting can increase your risk of diabetes, heart disease, stroke, high cholesterol and cancer. (6,7)



### **STONE & PHYSIQUE**

Standing increases energy, blood flow, burns extra calories, tones muscles, improves posture and boosts metabolism.

This helps you to stay fit. When sitting, your body uses minimal energy. (8,9)

# ● SITTING TIME PER DAY

## Fact.

Many adults have become sedentary and spend 70% or more of their waking hours sitting every day (6).



Studies have proven that sitting for 11 hours a day or more significantly increases your risk of earlier mortality by as much as 40% (4), independent of other forms of physical activity you may undertake.

Experts encourage us to reduce our sitting time to as little as 4 hours a day. When I first read this statistic, I didn't know how that was even possible! Yet I rose to the challenge, and I now aim to sit for a maximum of 4 hours a day and am experiencing many benefits as a result. More about this in the next chapter.



# EXERCISE DOESN'T COUNTERACT SITTING



According to a US study in 2015 (11) daily physical activity and exercise does not completely counteract the negative effects and health risks from prolonged sitting time (e.g. sitting at work all day).

This was particularly true for my dad and brother; both healthy and active but suffering from lower back pain.

**For optimal health and to prevent muscle atrophy, daily sitting time must be minimised.**

**Includes interviews with 20 health experts and references over 80 medical journals.**

This book will help you to improve your health while you work, explains why it's critical for us to make positive changes to our workday now and guides you through how to make healthy improvements to your workday. By creating an active workday you will experience better health, increased productivity and significantly lower your risk of disease.

Inside you'll find:

- » **Practical methods and tips**
- » **How to create an active workday**
- » **How to use a standing desk correctly**
- » **Ways to tackle lower back pain**
- » **Insights from health experts**
- » **Extensive medical research**
- » **180 pages**

"Much research has now proven a link with many chronic illnesses and our increasingly sedentary lifestyles and general lack of movement"

**Professor Avni Sali.**

**Thanks for reading the first 30 pages! Check out the complete book at [moviworkspace.com](http://moviworkspace.com)**