

Can Mindfulness improve your mental and physical health ?

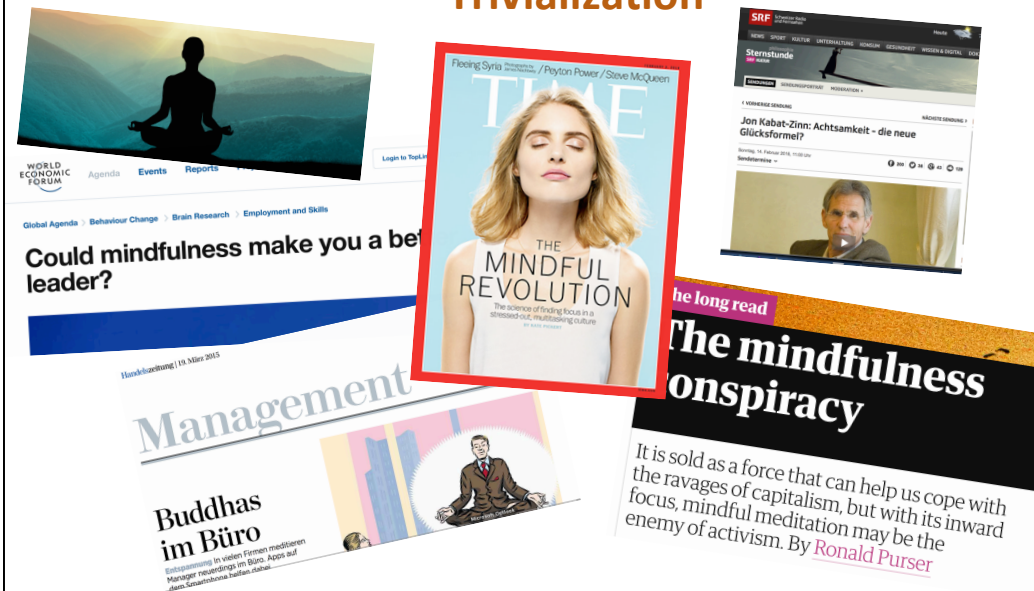
Lunch Event ETH Zürich
Monday, November 25th 2019

Dr. phil. Yuka Nakamura
CFM Zentrum für Achtsamkeit

Overview

- Mindfulness – what is it?
- Development of Mindfulness
- Absentmindedness and its costs
- Effects of Mindfulness on
 - the brain
 - mental health
 - physical health
 - social relationships
 - cognitive functions
- Conclusions

Mindfulness – between Hype, Critique and Trivialization



Mindfulness

*The awareness that comes from
paying attention
in the present moment,
on purpose,
nonjudgmentally.*

~Kabat-Zinn, 1990



Where is the attention right now?

The body is here.
Where is the mind?



Mindfulness: Intention, Attention, Attitude

Intentional attention to *this moment's experience*, presence of mind

+

Intentional attitude of non-judgment:
Open, curious, impartial

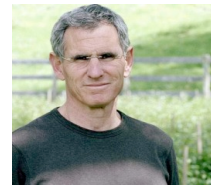
- Awareness of
- Bodily sensations and sensory impressions
 - Thoughts
 - Feelings, emotions

- Equanimity, acceptance
- Interest, curiosity
- Friendliness
- Suspending judgment



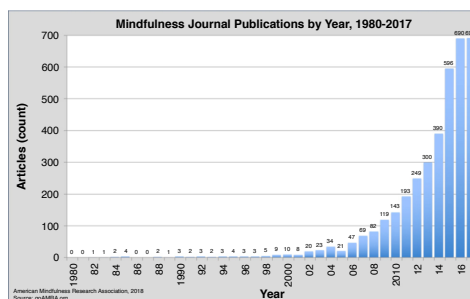
Development of Mindfulness

- Roots in Buddhist meditation
- 1979 ‚Mindfulness-Based Stress Reduction‘ (MBSR) developed by Prof. Jon Kabat-Zinn
- 8-weeks-programme for patients with chronic pain, cardiovascular disease, cancer, AIDS etc. as a supplement to conventional medical treatment.
- Essence: secular and systematic training of mindfulness



Mindfulness going Mainstream

- 80ies: Clinical studies by Kabat-Zinn on the effects of mindfulness.
- Parallel societal and cultural change (more interest in and openness for contemplation, meditation, yoga etc.).
- Since 2000 strong increase in scientific publications on mindfulness.



All publications on
Mindfulness in
ISI Web of Science

Mindfulness going Mainstream

- In recent years marked increase of mindfulness-based interventions in clinical treatment and prevention (for anxiety, addiction or eating disorders, smoking, depression, cancer, multiple sclerosis, fibromyalgia, ADHS, autism... etc.).
- Intervention programs for schools, children, families
- Workplace programs in companies and institutions (Google, SAP...)



Not here, not now



Living on «Auto-Pilot» (Kabat-Zinn, 1990)

- Limited awareness of this moment, of ourselves and of the context
– tunnel vision.
- Mind is distracted, unfocused, restless, getting lost in stories.
- Behavior and thinking driven by habitual patterns, compulsive.
- Reaction to unpleasant, challenging situations on impulse

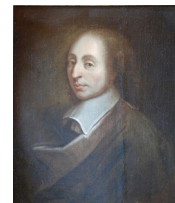


Not a modern problem...

We never keep to the present. We recall the past; we anticipate the future as if we found it too slow in coming and were trying to hurry it up, or we recall the past as if to stay its too rapid flight. We are so unwise that we wander about in times that do not belong to us, and do not think of the only one that does; (...).

Thus we never actually live, but hope to live, and since we're always planning how to be happy, it is inevitable that we should never be so.

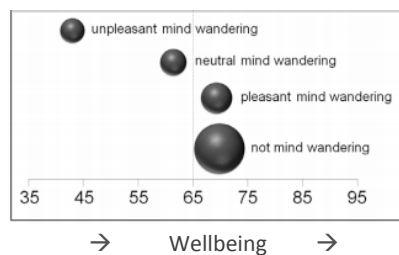
Blaise Pascal: Pensées, 1670



Mind-wandering

People are mind-wandering approx. 47% of the time, with large individual differences.

Mind-wandering in general goes along with decreased performance and less positive mood (exception: creative thinking).



Killingsworth & Gilbert (2010).

A Wandering Mind Is an Unhappy Mind. Science, 330.

Automatic thinking

- Thoughts can have powerful effects on how we see ourselves and the world – they shape our personal world.
- They create the stories we tell ourselves – positive and negative stories.
- Ruminative negative thinking can lead into a downward spiral of self-criticism, depression, anxiety, overwhelm...etc.



WORRIER POSE

Gemma CORRELL

Automatic reaction on Autopilot

Unpleasant
situation



Automatic,
impulsive reaction
(flight, fight, freeze,
numb out..)



Physiological /
emotional /
social costs

Reduced
self-regulation,
vicious circle



From Reaction to Response

situation /
stressor

S



reaction

R

situation /
stressor

S



mindfulness

M



skillful
response

R

Mindful response: Creating space for conscious, creative action

Unpleasant
situation



Pause
Breathe...

Become aware

*„What is
happening right
now?“*



Conscious,
adequate
action, coping



Mental and
physical
health



Resilience

Mindful response: Creating space for conscious, creative action

*Between stimulus and response there is a space.
In that space is our power to choose our response.
In our response lies our growth and our freedom.*

~Viktor E. Frankl

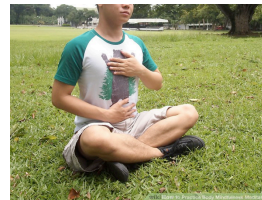


Mindful of Body and the Senses

- Mindfulness of body and of other sensory experiences allows us to shift **from thinking mode to an awareness** of the present moment.
- **Sensing our feet** on the ground or **our breath** helps to stabilize the attention and prevents getting lost in difficult thoughts and feelings that can so easily carry us away.

What are you aware of right now

- *in the soles of your feet?*
- *in the abdomen?*
- *In the hands?*
- *in your visual field?...*



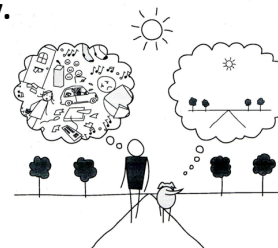
Mindful of Thoughts

By becoming aware of thoughts / habitual thought patterns it is possible to get a perspective on them rather than being ,in' them.

- **Thoughts are just mental events – not reality.**
- **They are not necessarily true.**
- **With mindfulness we can use thoughts skillfully, but not be enslaved by them.**

What are you aware of right now

- *In terms of thoughts?*
- *In terms of emotions / feelings?*



Mind Full, or Mindful?

The costs of absentmindedness



„Once you can see the difference that paying full attention can make to the small things in life, you start to get an inkling of the cost of inattention. Just think of all the pleasures of seeing, hearing, tasting, smelling and touching that are drifting by you unnoticed. You may well be missing vast portions of your daily life.

You only ever have a moment to live, this moment..”

~Prof. Mark Williams

Practising Mindfulness

- Mindfulness is a **skill** that can and needs to be **trained**. We train the mind like we train the body.
- Time spent in formal practice is related to extent of improvement in mindfulness (Carmody & Baer, 2008):
-> *The more you practice it, the better you get at it.*
- **Formal practices:** Mindfulness meditation, tai chi, qi gong, mindful yoga.
- **Informal practices:**
‘Know what you are doing while you are doing it’
- practising mindfulness in everyday life.



Effects of Mindfulness

Many scientific studies show that a regular practice of mindfulness has a range of beneficial effects

- **Brain functions and structures**
- **Mental health**
- **Physical health**
- **Social and moral behaviour**
- **Cognitive functioning**

Effects of mindfulness on the brain

Studies show changes in areas of the brain that are involved in

- Attention
- Working memory
- Self-perception and meta-awareness
- Emotion regulation, coping with stress
- And a slowing down of age-related thinning of the frontal cortex.

King & Fresco (2019): Neurobehavioral changes leading to decentering ability

Kral et al. (2018): Reduced amygdala reactivity, and heightened amygdala–VMPPFC connectivity.

Luders et al. (2016): Reduced brain aging in regular meditators.

Fox et al. 2014: Review: Eight brain regions typically altered

Hölzel, B.K. et al. (2011): Increase in grey matter in areas involved in learning and memory, self-perception and changes of perspective.

Lazar & Kerr (2005): Higher cortical thickness & density in areas that are involved in self-perception, attention and processing of sensory input.

Effects of mindfulness on mental health

Positive effects on

- Depression
- Anxiety
- Quality of life
- Self-acceptance
- Self-efficacy
- Resilience
- Emotion regulation
- Addictive disorders



Ma, S. H., & Teasdale, J. D. (2004). Mindfulness-Based Cognitive Therapy for Depression: Replication and Exploration of Differential Relapse Prevention Effects.. *Journal of Consulting and Clinical Psychology*, 72(1), 31–40.

Bowen et al. (2014). Relative efficacy of mindfulness- based relapse prevention, standard relapse prevention, and treatment as usual for substance use disorders: a randomized clinical trial. *JAMA Psychiatry* 71(5):547–56.

RESEARCH ARTICLE

Standardised Mindfulness-Based Interventions in Healthcare: An Overview of Systematic Reviews and Meta-Analyses of RCTs

Renske A. Gotink^{1,2,3}, Paula Chu⁴, Jan J. V. Busschbach⁵, Herbert Benson^{6,7}, Gregory L. Fritschione^{8,9}, M. G. Myriam Hunink^{1,3,9*}

Gotink et al. (2015): Very comprehensive survey of **23 meta-analyses and reviews**.

„Compared to waiting list control and compared to treatment as usual, MBSR and MBCT significantly improved

- *depressive symptoms* (d=0.37; 95%CI 0.28 to 0.45, based on 5 reviews, N=2814),
- *anxiety* (d=0.49; 95%CI 0.37 to 0.61, based on 4 reviews, N=2525),
- *stress* (d=0.51; 95%CI 0.36 to 0.67, based on 2 re- views, N=1570),
- *quality of life* (d=0.39; 95%CI 0.08 to 0.70, based on 2 reviews, N=511) and
- *physical functioning* (d=0.27; 95%CI 0.12 to 0.42, based on 3 reviews, N=1015).”

“The evidence supports the use of MBSR and MBCT to alleviate symptoms, both mental and physical, in the adjunct treatment of cancer, cardiovascular disease, chronic pain, depression, anxiety disorders and in prevention in healthy adults and children.”

Effects of mindfulness on resilience

Mindfulness strengthens resilience, i.e. the ability to stay healthy or even grow in spite of stressful circumstances.

Jha et al., 2010: Mindfulness-training for soldiers before deployment: decreased loss of working-memory, less negative affect and more positive affect compared to a control-group.

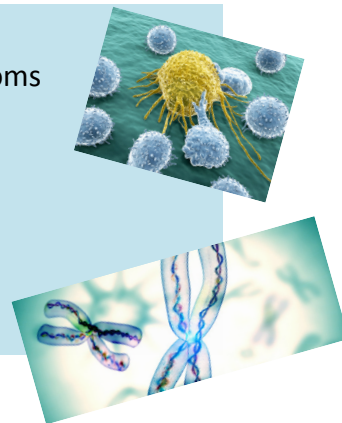
Smith et al., 2011:
Firemen with higher mindfulness:
less posttraumatic stress-disorder,
depression, physical symptoms and
alcohol abuse.



Effects of mindfulness on physical health

Evidence:

- Reducing stress-related physical symptoms
- Improved immune system
- Decrease in blood pressure
- Reduced inflammatory reactions
- Cell-aging (increased telomerase)
- Diabetes
- Psoriasis...



With regard to objective measures for diseases results often non-significant or still inconclusive (Greeson & Chin, 2019, review article)

Effects on physical health: inflammatory processes

Creswell et al. (2016). **Alterations in Resting-State Functional Connectivity Link Mindfulness Meditation With Reduced Interleukin-6: A Randomized Controlled Trial.** *Biological Psychiatry*, 80, 53-61.

- 35 unemployed men with high stress-levels.
- Comparison of two courses, each 3 days: mindfulness vs. relaxation.
- Immediately after the course, in the mindfulness-group only: increase of activity and connectivity in the prefrontal cortex area (important area for top-down regulation of stress).
- 4 months after the course, in the mindfulness-group only : Significant **decrease of Interleukin-6** (bio-marker for inflammatory processes in the body). This was related to the increase in connectivity.

Effects on immune system, inflammatory reactions and aging of cells

Black & Slavich (2016). **Mindfulness meditation and the immune system: A systematic review of randomized controlled trials.** *Ann.N.Y. Acad. Scien.*

Survey of over 20 studies, totalling 1602 participants
Measurement of various indicators related to immune system, inflammatory reactions and aging of cells

„In conclusion, across 20 RCTs and more than 1600 participants, we found tentative evidence that mindfulness meditation modulates some select immune parameters in a manner that suggests a more salutogenic immune profile.“

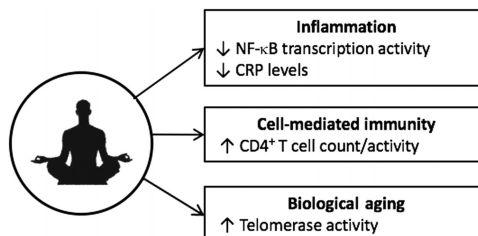


Figure 1. Mindfulness meditation and immune system biomarkers. This systematic review of 20 randomized controlled trials, comprising more than 1600 participants, revealed replicated, yet tentative, evidence that mindfulness meditation is associated with changes in select immune system processes involved in inflammation, immunity, and biological aging. NF-κB, nuclear factor-κB; CRP, C-reactive protein.

Effects on chronic pain

- Reduced **psychological distress** through an attitude of **acceptance**
- Increase in perceived **quality of life**
- Decrease of the **perceived intensity of pain**.



Reiner et al., 2013: 6 out of 8 controlled studies show a more significant decrease of the intensity of pain in the MBI-Groups as compared to the control-groups

Nathan et al. 2017: Decreases in pain symptom severity and pain catastrophizing, improved function and health-related QoL (pat. with Diabetic Peripheral Neuropathy)

Lakhan & Schofield 2013: Improvements in pain, symptom severity, quality of life, depression, and anxiety compared with support group controls.

Effects of mindfulness on social and moral behaviour

Evidence with regard to

- Empathy and compassion
- Acceptance and tolerance
- Prosocial behaviour
- Social competence
- Moral reasoning and ethical behaviour



Donald et al., (2019): Systematic review for m. & prosocial behaviour (trait and intervention)

Ruedy & Schweitzer (2010): Correlation with ethical decision making

Dekeyser et al. (2008): Increased the ability to express oneself adequately in a variety of situations.

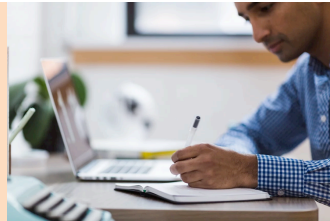
Shapiro et al. (1998): A training in mindfulness increased empathy in medical students.



Effects of mindfulness on cognitive functioning

Evidence for

- Stabilizing attention
- Working-memory
- Cognitive flexibility, problem solving
- Academic performance



Smallwood & Schooler, 2015: Stabilizes attention in the present

Tang et al. 2007; Allen et al., 2012: Mind less distractible

Lutz et al., 2009: Longer ability to remain vigilant.

Jha et al., 2019 & 2010, Roeser et al., 2013: Increased working-memory capacity

Colzato, Ozturk, & Hommel, 2012: Enhanced creativity and divergent and convergent thinking

Rosenstreich & Margalit 2015: Increased academic performance in first-year college students.

Ostafin & Kassman, 2012: Better insight problem solving

Practising Mindfulness in Daily Life

'Know what you are doing, while you are doing it'

Being aware when

- washing the hands
- communicating
- eating
- waiting in a queue
- walking
- riding on a bus / train
- cooking....



Practising Mindfulness in Daily Life

'Coming to our senses'

Being aware of

- Tastes and textures
- Sounds and soundscapes
- Colours, light and shadow
- Shapes, structures
- Smells and fragrances
- Touches, contact
- Warmth or coolness...



Practising Mindfulness in Daily Life

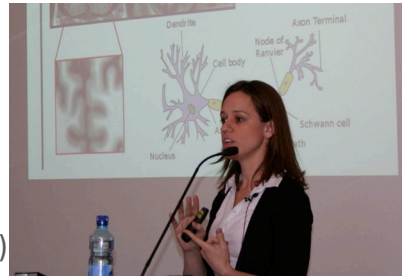
- Practising **formal meditation** regularly, e.g. 10' to 30' per day (helpful Apps: 10% Happier, Insight Timer, Headspace, JKZ and many others)
- Mindful Movement: Mindful Yoga / Tai Chi / Qi Gong / Alexander Technique and many others.



Mindfulness as a way of taking care of our well-being

“It is fascinating to see the plasticity of our brain and that we can play an active part in changing our brain by meditation and in this way enhance our well-being and quality of life.”

~Britta Hölzel (Neuroscientist)



Conclusions

- Mindfulness is a central capacity underlying multiple processes involved in psychological and biological regulation processes.
- It helps us live our lives with more awareness and enhances our freedom to choose how we respond to circumstances and challenges.
- Regular practice strengthens mindfulness and benefits mental and physical health.
- Thus the practice of mindfulness is a powerful way to take care of our own well-being.
- The only requirement: The willingness to be aware and mindful of our experience – in every moment.



The practice of mindfulness is an art that teaches us to see ourselves and the world in new ways, and to deal with our bodies, with our thoughts, feelings and perceptions consciously. It teaches us to take life and ourselves less seriously and to laugh more often, while we try to the best of our ability to find our place of balance, our center, and to stay in it.

~Jon Kabat-Zinn



Contact

Yuka Nakamura, Dr. phil.
yuka.nakamura@centerformindfulness.ch

Website:
CFM Zentrum für Achtsamkeit, Zürich
www.centerformindfulness.ch