Mindfulness in high performance environments 2011-2016

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Safe and efficient operations…

- Quality decisions during
  - Complexity
  - Tempo
  - Continous change
- Prevent
  - Excess stress
  - Fatigue
  - Information overload
  - Complacency

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Background

- Extended periods of high demands is sometimes necessary for mission completion
- Long term stress can seriously compromise, health and performance
- What are effective interventions?

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Mindfulness

"Paying attention on purpose, in the present moment, non-judgementally"
Kabat-Zinn, 2003

"A sharpened state of awareness and a mental skill"
Mayer, Salovey, & Caruso, 2000

Mindfulness-training can reduce the negative consequences of stressors, without compromising alertness
(Tang et al., 2015; Amishi Jha et al., 2011; 2015;2016; Meland et al., 2015).

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Aims of the thesis

Test whether mindfulness-training is an acceptable method with measurable effect on stress-reduction and attentional control in healthy high-performance cohorts

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The four studies

Study 1:
Mindfulness-based mental training in a high-performance combat aviation population: A one-year intervention study and two-year follow-up (Published)

Study 2:
The "absent mind" during whole body vibration (Published)

Study 4:
Impact of mindfulness training on physiological measures of stress and objective measures of attention control in a military helicopter unit. (Published)

Study 4:
Inhibitory control is differentially associated with mindfulness facets in a high performance cohort (under review)

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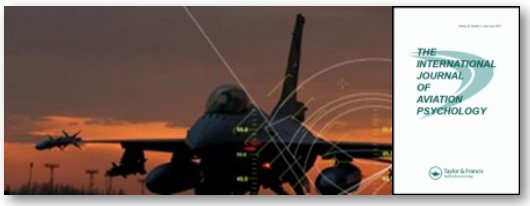
Study 1: Mindfulness in a fighter air-craft environment



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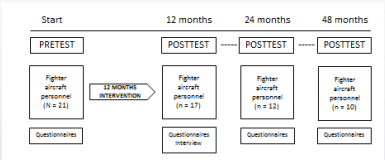
Overview study 1



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Intervention

- Plenary work:
  - 10 hours intensive retreat
  - 2.5 hours weekly sessions
- Individual work
  - 20 min daily training
  - Informal training
- Spouse training

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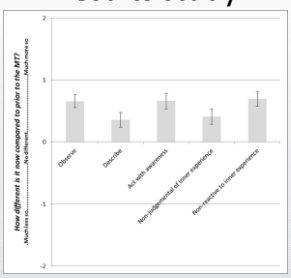
Results study 1



Mean change scores on the retrospective FFMQ from T1 to T2, with error bars showing standard error (n = 17).

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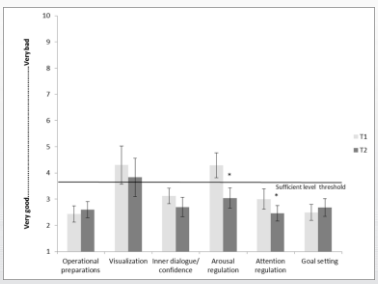
Results study 1



Mean scores on mental skills at T1 and T2, with error bars showing standard error (n=12).

Study 3: Mindfulness in a military helicopter environment

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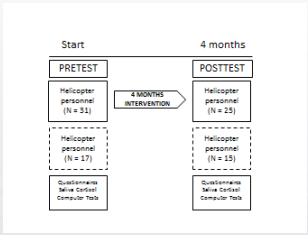
Overview study 3



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Saliva cortisol

- Mean of two consecutive working days (pre- and post intervention)
  - Wakeup
  - 30 min after wakeup
  - Bedtime

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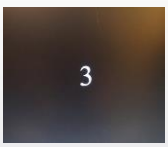
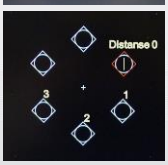
Perceptual-cognitive tests

Sustained attention to response test
5 minutes
(Robertson et al.,1997)



Attentional capture test (ACT)
15 minutes
(Theeuwes & Chen, 2005)



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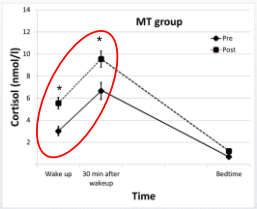
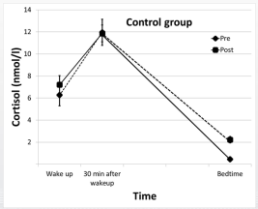
Results study 3





Mean salivary cortisol levels at wake-up, 30 min after wakeup and bedtime pre- and post-intervention. Error bars showing standard error.
Sig. statistics - Mixed between-within subjects analyses of variance

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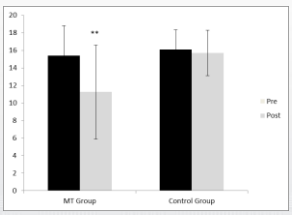
Results study 3



Sustained attention to response test
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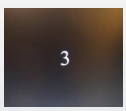
(Robertson et al.,1997)



Mean TLX scores of mental demand of doing the SART test.
Error bars showing standard error.
Sig. statistics - Mixed between-within subjects analyses of variance

Study 4: Mindfulness in an elite soccer environment

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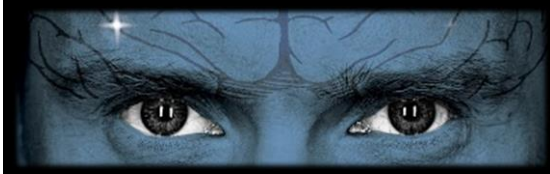
Conclusion

- Mindfulness-training (as delivered in the current studies) alleviates some of the physiological stress response and the subjective mental demands of challenging tasks in military high performance cohorts during periods of high workload
- Application: Mindfulness-training may be used as means of reducing stress and economizing attentional control in operators exposed to stress-inducing situations and environments

Optimize your performance through mental training



Systematic mental preparations in performance environments

The samurais and practitioners of the martial arts have long been known for their thorough and systematic mental preparations. Today mental training methods have been scientificially tested and become an integral part of the preparations in many high performing enviroments.

Change your brain

Like the rest of our body, the brain change.
By making the brain practice and repeat the key elements you want to improve you change the brain to respond more efficient to your environment.

Mental training regimes takes advantage of this.

Mental training principles

ISOLATE	Isolate the mental processes you want to improve
OVERLOAD	Challenge your mental skills
REPEAT	Repeat the neural activities

Human Hardware

Our brain and nervous system have evolved to handle challenges threatening our survival, for example wild animals. Therefore we overreact in situations where we feel pressured and get easily distracted.

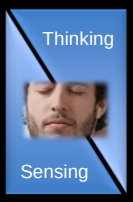
Because evolutionary change takes thousands of years, we are still carrying this hardware.

Keeping calm and coping with distractors is regarded the ultimate challenge to many high performing individuals – and is an important goal in many mental training regimes.

Software-updates

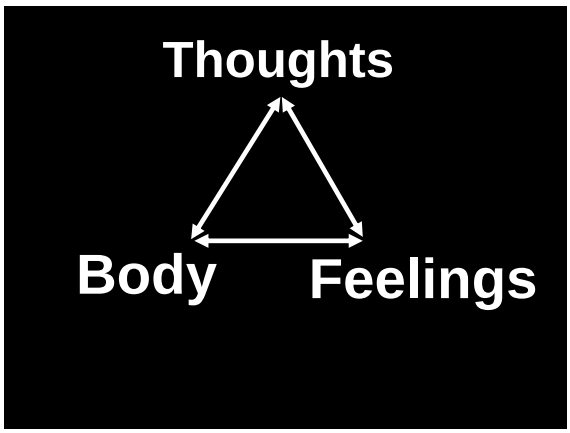
We look for methods that engages awareness and attention at a fundamental level. Rather than coaching for specific situations, we look for methods that sharpens attentional tools and coping strategies that can be applied into any performance situation.

Mindfulness



By focusing on your body and breath with acceptance you train:

- Focusing-skills
- Resilience to inner disturbance
- Ability to flexibly move between thinking and sensing mode



SOAL

Stop
Observe
Accept
Let go