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Does a 12-week yoga program influence the decision-making capacity of military aviation pilots?

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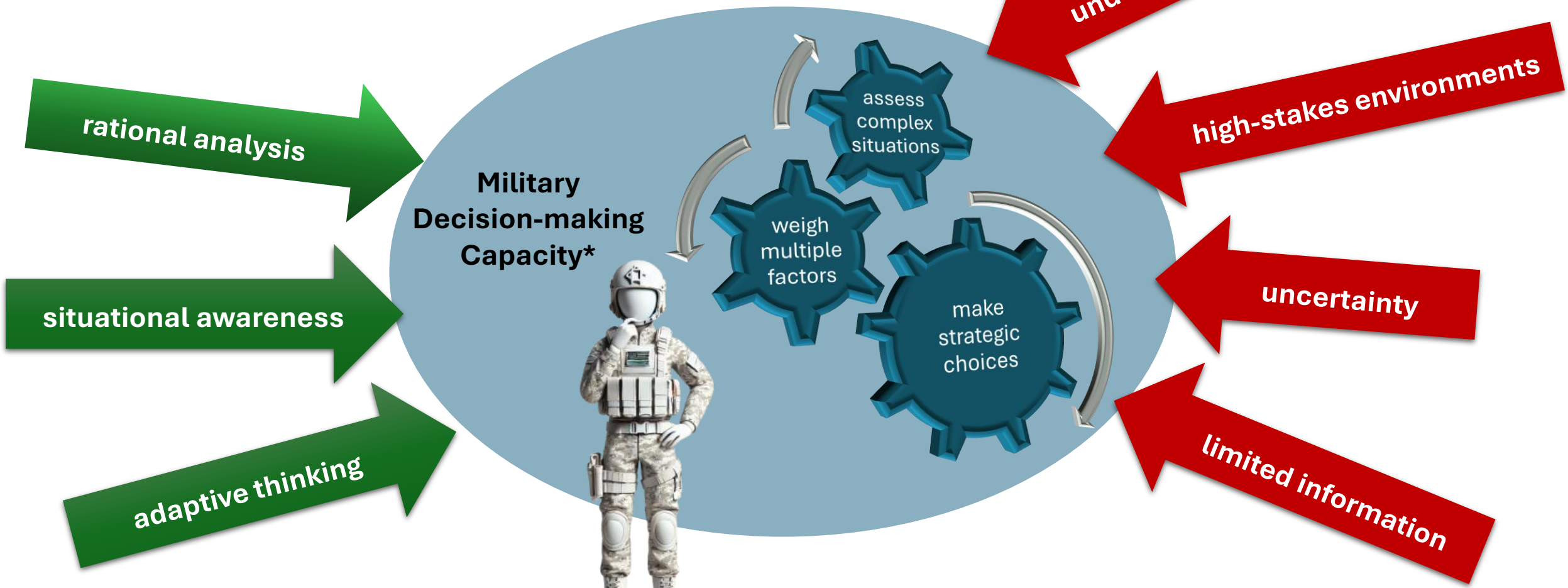
Rationale and aims



*Ability to navigate dynamic and sometimes ambiguous scenarios, integrating both doctrinal approaches and field-based, experiential insights.

(Lahtinen et al., 2007; Svensson et al., 1997; Shortland et al., 2019)

Rationale and aims

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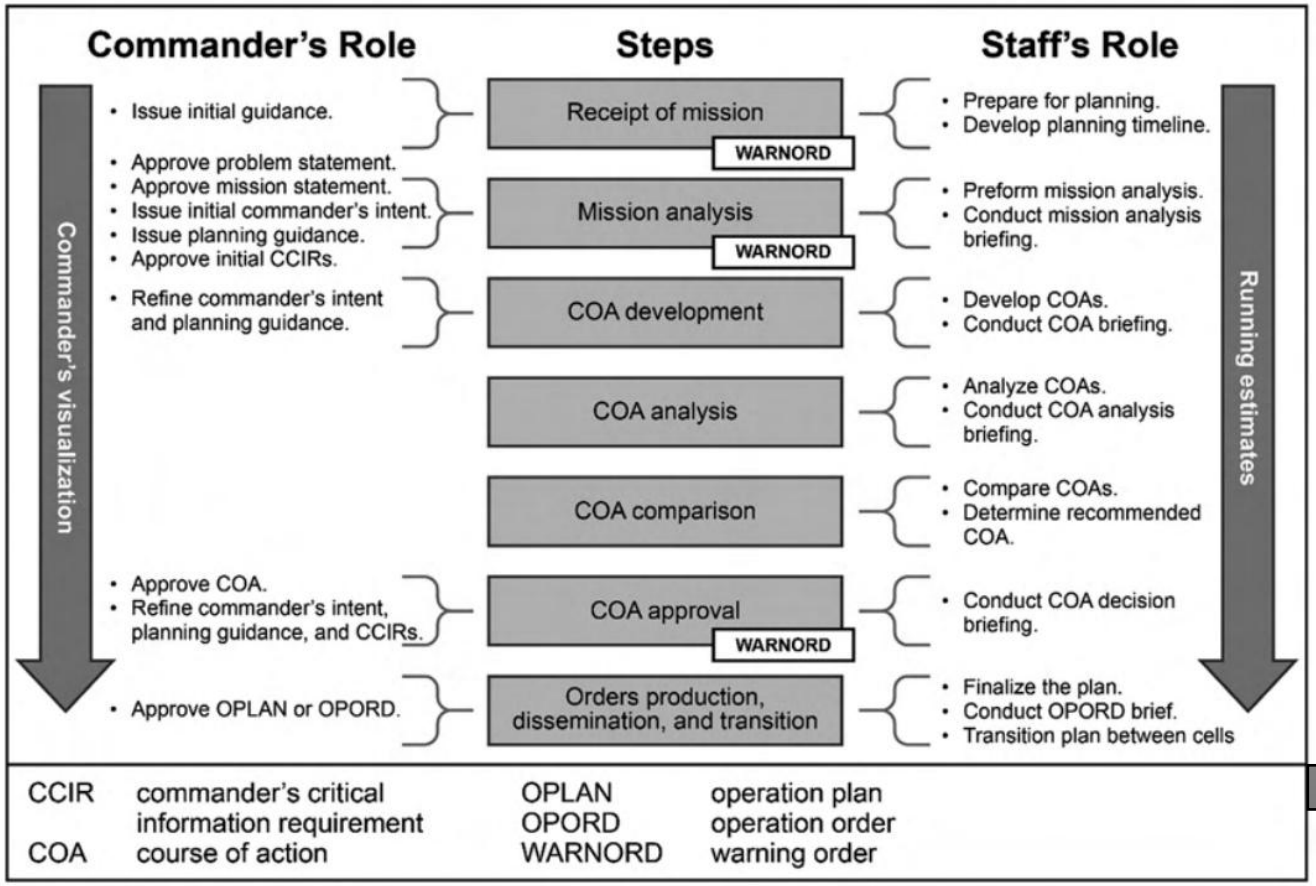
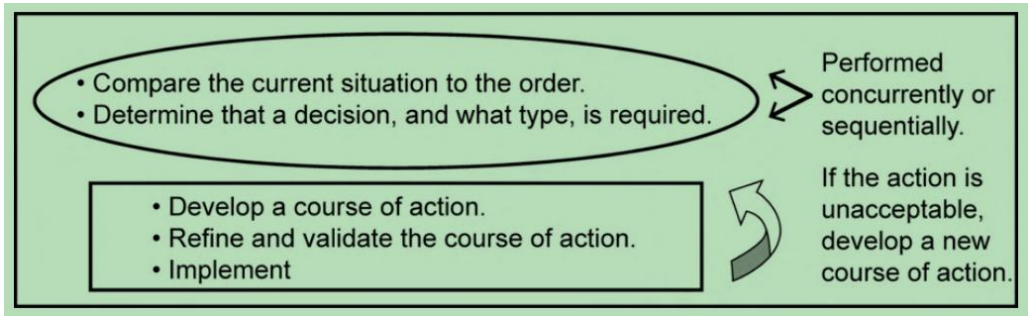
- Decisions involve a structured, **systematic seven step process** that helps leaders analyse missions, develop courses of action, and make informed decisions, ensuring effective planning and coordination in complex scenarios, with **rapid decision-making and synchronization process**:





(Airforce Special Tactics, n.d.; Woll, 2019; Kuczynski, 2023)

Rationale and aims

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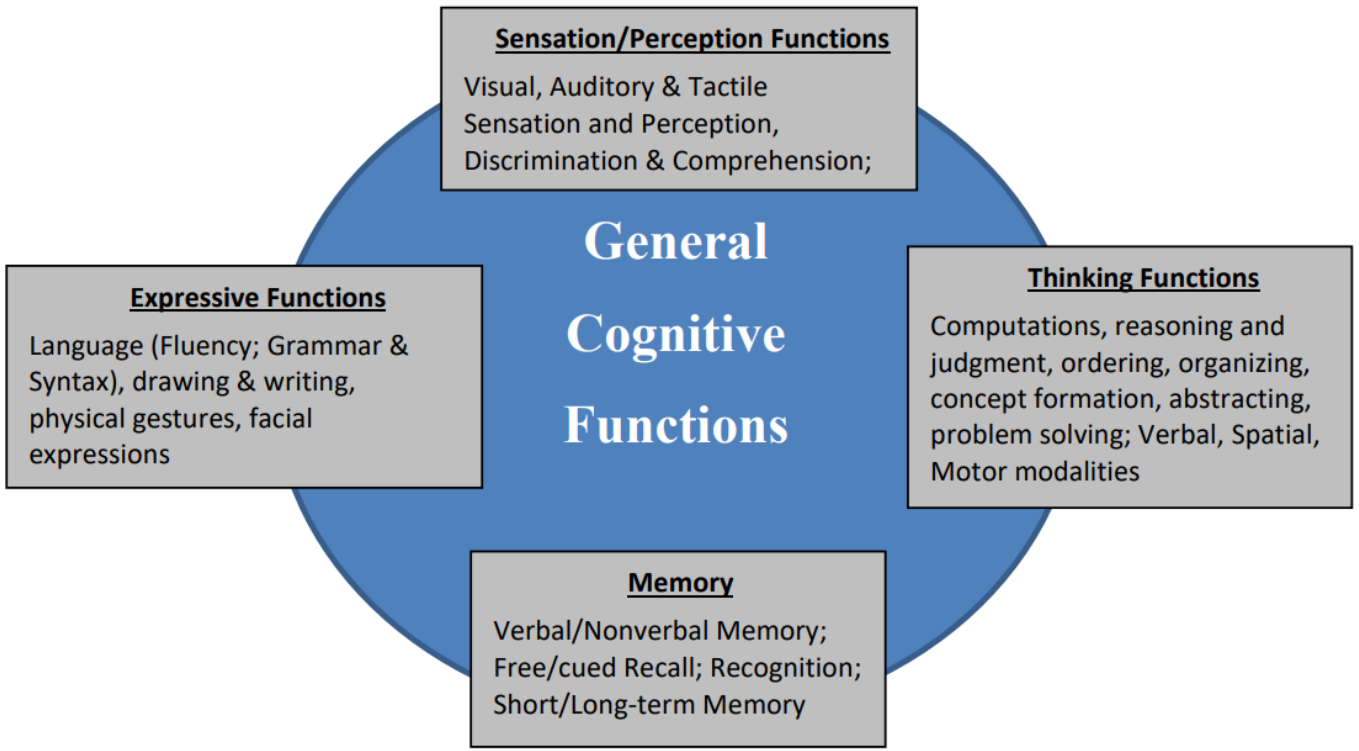

General cognitive functions needed for operational performance
(Proctor et al., 2017)

Can a body-mind intervention like Yoga help

- This study investigates whether the incorporation of yoga practice into the training regimen of Portuguese Airforce Aviation Pilots can **enhance their military decision-making capacity**, while promoting **better occupational health safety**.

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Methods

A randomized controlled trial with Portuguese Airforce pilots had the Control Group (n = 8), follow standard military aviation training and being put in a “waiting list”, and the Intervention Group (n = 10), receive additional yoga training twice a week for 12 weeks.

Participants gave written informed consent per the Helsinki declaration.

Ashtanga (asta - eight, anga - parts)

Vinyasa (soft transition between ásanas)

Yoga (practice for evolution)

Supta (closed eyes)

60 min

Prathyáhára abstraction

Mental exercises to minimize sensory activity so that attention can be focused on the practice only

5 min

Pranayama breathing

Breathing exercises:
5 mins of Raja Pranayama (complete breathing)
5 mins of Kriya pranayama (cleansing throught breath)

10 min

Ásana physical postures

Sun salutations and postures focused on spine movements (flexion, extention, lateral flexion, rotation and inversion), neck and arm strenghtening and overall mobility

35 min

Dháraná one-pointed attention

Mental exercises to focus and prepare for meditation

5 min

Dhyána meditation

Contemplation and meditation techniques to improve self-knowledge

5 min

To access the open access Study Protocol:

ClinicalTrials.gov identifier NCT05821270, since April 19, 2023. Évora University research ethics committee approval number: 21050.

Methods

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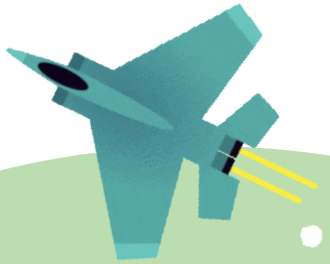
Aviation Safety Attitude Scale (ASAS):

27 items on a five-point scale

Each designed specifically to assess aviation pilots' attitudes with respect to predict the hazardous event involvement

Higher scores indicate a greater degree of that particular attitude



The evaluation will assess the exercise protocol's impact on cognitive abilities, anticipating enhanced decision-making skills in more confident pilots.

(Whitley, 1997; Hunter et al., 2005; Bustamante-Sánchez et al., 2019)

Analysis

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- Data analysis used Jamovi (version 2.3.16).
- Normality was assessed with the Shapiro-Wilk test, non-parametric data analysis used Wilcoxon rank test and Rank Biserial Correlation for effect sizes.
- Statistical significance was generally determined with a threshold of 0.05.

				Statistic	p	Effect Size
Self-Confidence	Whithin group	Control group before	Control group after	19.00	0.447	0.357
		Intervention group before	Intervention group after	2.50	0.021	-0.889

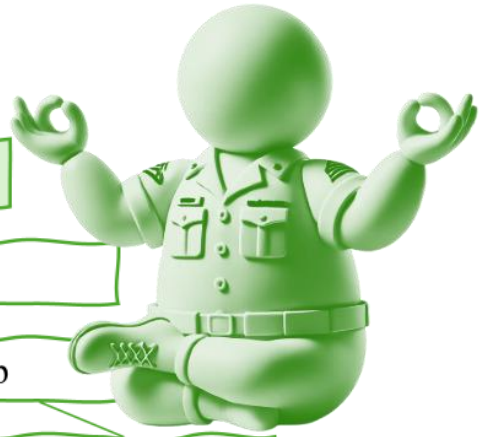
				Statistic	p	Effect Size
Risk Orientation	Whithin group	Control group before	Control group after	20.00	0.352	0.429
		Intervention group before	Intervention group after	3.00	0.014	-0.891

				Statistic	p	Effect Size
Safety Orientation	Whithin group	Control group before	Control group after	20.50	0.779	0.139
		Intervention group before	Intervention group after	2.50	0.011	-0.909

Findings

No differences were found within the control group.

Significant differences were found within the intervention group.



ASAS

Increased

Within yoga group

Risk Orientation (more inclined to engage in actions that involve potential hazards)

(p = 0.024)

Safety Orientation (stronger commitment to safety protocols and practices)

(p = 0.021)

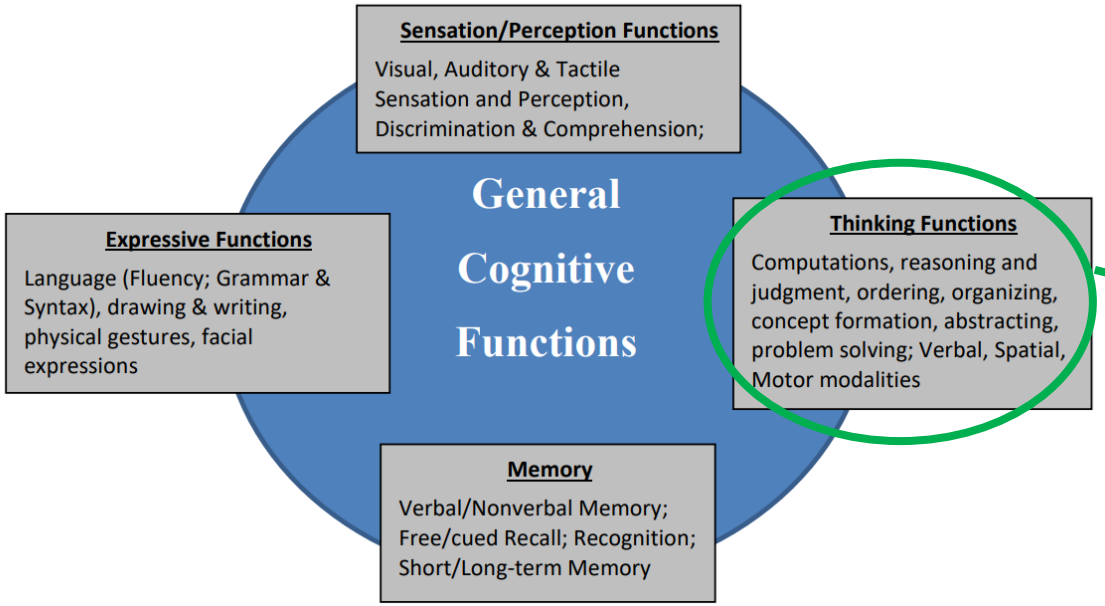
Self confidence (in their abilities)

(p = 0.021)

Calculated Risk

The combination of these results leads to a balanced approach to decision-making

Conclusions



General cognitive functions needed for operational performance

Can a body-mind intervention like Yoga help

Yoga improved thinking functions, regarding reasoning and judgement

- These insights are also applicable to Airforce teams in other nations, commercial and civil aviation sectors, as well as high stress/high performance occupational or sports settings.
- Results could influence policymakers to implement mandatory exercise programs, enhancing work safety.

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Thank you!

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