

## DEVELOPING TEAM TRAINING AND COHESION MEASUREMENT BEST PRACTICES FOR LONG-DURATION SPACEFLIGHT

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### BACKGROUND

Long duration spaceflight (LDSF) expeditions provide unique challenges for teams. For example, crewmembers will experience environmental conditions that aren't replicated in other work settings, such as microgravity, circadian rhythm disruptions, and time-lagged communications outside of the immediate flight crew [1]. As the crew will be exposed to an isolated and confined environment during flight, potential breakdowns and interpersonal conflict can lead to severe negative consequences in the mission. The risks associated with future space expeditions require crew members to maintain not only their health, but also maintain crew cohesion and interpersonal interactions with fellow teammates. Therefore, countermeasures are required for both preparing and monitoring the crew's performance and behavior during these missions. While extensive research exists relating to both team training [2] and cohesion measurement [3], these literatures are vast, making it difficult to easily apply knowledge to real world teams. Therefore, the purpose of this effort was to extract guidelines and best practices into a consolidated framework to aid organizations in implementing team training and monitoring cohesion to meet their needs.

This discussion will first outline our work to establish guidelines and best practices for team training application. Best practices have been extracted from the scientific literature on team training and organized into a hierarchical framework that details considerations throughout all the phases in training: (1) identifying training needs, (2) design, (3) delivery, (4) evaluation, and (5) sustainment. This resource can be utilized as a guide for researchers and practitioners alike to develop and apply team training to enhance performance.

Next, we discuss our work identifying current trends and best practices for cohesion measurement. This involved a qualitative review of 156 empirical articles that were coded to gain insight into how cohesion is conceptualized and measured, and cohesion's relationship to other variables in the extant literature. Findings from our review have significant implication for cohesion measurement methodologies, highlighting best practices such as the use of multidimensional cohesion measures and selecting measures that map to key criteria of interest. Our efforts have also shed greater light on the various ways that cohesion is conceptualized, as well as how cohesion relates to other variables of interest to LDSF settings. Finally, we put forth a set of best practices for cohesion measurement that is sensitive and adaptable to the conceptualization of cohesion and for investigating its relationship to other variables of interest.

### REFERENCES

- [1] Morphey M.E. (2001) *McGill Journal of Medicine* 6, 74-80. [2] Salas E. et al (2008) *Hum Factors* 50, 903-933. [3] Carless S.A. and De Paola C. (2000) *Small Gr Res* 31, 71-88.