

Amanda and Roger Mortimer Bios:

Roger Mortimer, MD has been caving for 30+ years and teaching cave rescue for 22. He is the Western Region Coordinator of the National Cave Rescue Commission. He is a Clinical Professor of Family and Community Medicine for UCSF Fresno where he researches wilderness medicine topics. Roger volunteers with the Fresno County SAR Mountaineering Team.

Amanda R. Mortimer, Ph.D., is a licensed Clinical Psychologist and an Associate Professor of Psychology at California State University, Fresno. She has been an instructor for the National Cave Rescue Commission since 1997, and teaches Psychological First Aid for the Red Cross. She is particularly interested in applying findings from learning, memory, and neuroscience to increasing teaching value and improving outcomes in the search and rescue field.

Abstract:

Successful search and rescue activities often require precision. Biologically based limitations in human abilities must be taken into account when planning in order to create positive outcomes. An initial limitation is the very small time span of attention. Even a highly motivated person is likely to only be able to attend to a specific task for several minutes. This is particularly problematic if attention is focused on the wrong aspect of an experience. This easily results in completely missing the desired input. Further, the idea of multitasking is a lie. People can switch attention between more than one thing, but they are not physically capable of attending to multiple things at once. A second limitation is the very small amount of cognitive space available for online processing in working memory. Size of working memory varies between individuals. The average size is ability to consider seven things at one time. This is seen in organizational span of control limitations. Too many assignments or direct reports can result in loss of ability to track incoming information and direct appropriate actions. A third biological limitation is the way processing changes in the presence of notable fear or panic. Fear and panic are pervasive in search and rescue. With release of the hormone adrenaline many body systems adapt to respond to immediate threat. These changes cause great increased difficulties due to the first two limitations. Mental responses are directed to incoming stimuli in a different way. Attention is focused directly on the perceived threat, while other inputs are ignored. Working memory decreases. These shifts result in extreme limitations on creative problem solving. This greatly increases risk for negative search and rescue outcomes.