

1. Record Nr.	UNINA9910971001303321
Titolo	Caffeine for the sustainment of mental task performance : formulations for military operations
Pubbl/distr/stampa	Washington, D.C., : National Academy Press, c2001
ISBN	9786610210077 9780309170307 0309170303 9781280210075 1280210079 9780309565943 0309565944
Edizione	[1st ed.]
Descrizione fisica	1 online resource (171 p.)
Disciplina	615/.78
Soggetti	Caffeine - Physiological effect Nootropic agents Cognition - Effect of drugs on Soldiers - Health and hygiene - United States
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references (p. 97-112).
Nota di contenuto	Caffeine for the Sustainment of Mental Task Performance -- Copyright -- Preface -- HISTORY OF THE COMMITTEE -- ORGANIZATION OF THIS REPORT -- ACKNOWLEDGMENTS -- Contents -- Executive Summary -- BACKGROUND -- THE COMMITTEE'S TASK -- METHODS -- CAFFEINE USE -- CAFFEINE METABOLISM -- Pharmacology -- Physiology -- RESPONSE TO MILITARY QUESTIONS -- Conclusions -- Recommendations -- Potential Health Risks -- Hypertension -- Heart Disease -- Reproduction -- Osteoporosis -- Fluid Homeostasis -- Behavioral Effects -- Physical Dependence and Withdrawal -- Caffeine and Stress -- Conclusions -- Recommendations -- Conclusions -- Recommendations -- Alternatives -- Combination of Caffeine and Naps -- Amphetamine -- Modafinil -- Conclusions -- Recommendations -- Conclusions -- Recommendations -- 1 Basic Concepts -- MILITARY

INTEREST IN CAFFEINE -- Previous Committee on Military Nutrition Research Recommendations -- The Current Situation -- HISTORY OF CAFFEINE USE -- Caffeine Content of Common Food Sources -- Caffeine Intake of Adults -- THE COMMITTEE'S TASK -- 2 Pharmacology of Caffeine -- ABSORPTION, DISTRIBUTION, AND METABOLISM -- FACTORS AFFECTING CAFFEINE METABOLISM -- PHYSIOLOGICAL EFFECTS -- Caffeine and Adenosine Receptors -- Caffeine and Phosphodiesterase -- Caffeine and Calcium Mobilization -- Caffeine and Benzodiazepine Receptors -- General Effects of Caffeine on Physiological Functions -- SUMMARY -- 3 Efficacy of Caffeine -- PHYSICAL PERFORMANCE -- Carbohydrate-Caffeine Mixtures -- Other Effects on Physical Performance -- COGNITIVE FUNCTION AND ALERTNESS -- COMPENSATION OF SLEEP DEPRIVATION IMPAIRMENTS -- Effects of Sleep Deprivation on Cognitive Behavior -- Restoration of Sleep Deprivation-Induced Cognitive Deficits with Sleep -- Restoration of Sleep Deprivation-Induced Cognitive Deficits with Caffeine.

Restoration of Sleep Deprivation-Induced Cognitive Deficits with a Combination of Caffeine and Naps -- SUMMARY -- 4 Safety of Caffeine Usage -- CAFFEINE AND CARDIOVASCULAR DISEASE RISK -- CAFFEINE EFFECTS ON REPRODUCTION -- CAFFEINE EFFECTS ON BONE MINERAL DENSITY -- CAFFEINE EFFECTS ON FLUID HOMEOSTASIS -- DETRIMENTAL EFFECTS OF HIGH DOSES OF CAFFEINE -- Effects of Caffeine in the Context of Stress -- Risks of Caffeine in Combination with Ephedrine and Other Stimulants -- Physical Dependence and Withdrawal -- SUMMARY -- 5 Doses and Delivery Mechanisms -- OPTIMUM CAFFEINE DOSAGE -- Physical Performance -- Cognitive Performance -- CAFFEINE DELIVERY MECHANISMS -- SUMMARY -- 6 Special Considerations -- EDUCATION AND TRAINING ISSUES -- LABELING -- ETHICAL CONSIDERATIONS -- ALTERNATIVES TO CAFFEINE FOR MAINTENANCE OF COGNITIVE PERFORMANCE -- Naps -- Pemoline -- Modafinil -- Amphetamine -- SUMMARY -- 7 Response to Military Questions, Conclusions, and Recommendations -- Conclusions -- Recommendations -- Hypertension -- Cardiovascular Disease -- Reproduction -- Osteoporosis -- Fluid Homeostasis -- Behavioral Effects -- Physical Dependence and Withdrawal -- Caffeine and Stress -- Conclusions -- Recommendations -- Conclusions -- Recommendations -- Combination of Caffeine and Naps -- Amphetamine -- Modafinil -- Conclusions -- Recommendations -- Conclusions -- Recommendations -- ADDITIONAL RESEARCH RECOMMENDATIONS -- References -- Appendixes -- A Workshop Agenda and Abstracts -- Workshop Abstracts -- GENERAL OVERVIEW OF MILITARY INTEREST AND RESEARCH ON ROLE OF CAFFEINE IN PHYSICAL AND COGNITIVE PERFORMANCE -- CAFFEINE AND MUSCLE METABOLISM DURING PROLONGED EXERCISE -- EFFECT OF CAFFEINE ON COGNITIVE FUNCTION AND ALERTNESS -- CAFFEINE AND SENTRY DUTY PERFORMANCE -- Conclusions.

EYELID MOVEMENT AS A PHYSIOLOGICAL PREDICTOR OF COGNITIVE IMPAIRMENT DURING SLEEP DEPRIVATION -- CIRCADIAN AND SLEEP HOMEOSTATIC MODULATION OF SLEEP AND PERFORMANCE -- CAFFEINE EFFECTS DURING SLEEP DEPRIVATION AND RECOVERY -- Objective -- Methods -- Results -- Conclusions -- CIRCADIAN AND HOMEOSTATIC INTERACTIONS IN WAKING NEUROBEHAVIORAL FUNCTIONS DURING PARTIAL AND TOTAL SLEEP DEPRIVATION:... -- CAFFEINE RESEARCH IN THE NAVY -- CAFFEINE AS A MODEL DRUG OF ABUSE -- CAFFEINE PHYSICAL DEPENDENCE AND THE CONSEQUENCES OF CAFFEINE ABSTINENCE -- Implications of Caffeine Physical Dependence for Performance Assessment -- POSITIVE EFFECTS OF

CAFFEINE OR NEGATIVE EFFECTS OF CAFFEINE WITHDRAWAL --
Abstract -- Introduction -- Method -- Participants -- Results --
Discussion -- Conclusion -- Acknowledgment -- PHARMACOLOGY OF
CAFFEINE -- DESIGN OF A FOOD MATRIX FOR THE DELIVERY OF
PERFORMANCE-ENHANCING COMPONENTS -- CAFFEINE AND
CARBOHYDRATE SUPPLEMENTS FOR PHYSICAL PERFORMANCE --
COGNITIVE PERFORMANCE EFFECTS OF CAFFEINE VERSUS
AMPHETAMINE FOLLOWING SLEEP DEPRIVATION -- USE OF
AMPHETAMINE TO COUNTERACT SLEEP DEPRIVATION IN AVIATORS --
EFFECT OF NAPS AND CAFFEINE ON ALERTNESS DURING SLEEP LOSS
AND NOCTURNAL WORK PERIODS -- Methods -- Results -- B Previous
Recommendations on Caffeine from the Committee on Military
Nutrition Research -- CAFFEINE -- COMMITTEE RECOMMENDATIONS
REGARDING FOOD COMPONENTS PROPOSED BY THE ARMY -- C
Biographical Sketches -- COMMITTEE -- SPEAKERS.

Sommario/riassunto

This report from the Committee on Military Nutrition Research reviews the history of caffeine usage, the metabolism of caffeine, and its physiological effects. The effects of caffeine on physical performance, cognitive function and alertness, and alleviation of sleep deprivation impairments are discussed in light of recent scientific literature. The impact of caffeine consumption on various aspects of health, including cardiovascular disease, reproduction, bone mineral density, and fluid homeostasis are reviewed. The behavioral effects of caffeine are also discussed, including the effect of caffeine on reaction to stress, withdrawal effects, and detrimental effects of high intakes. The amounts of caffeine found to enhance vigilance and reaction time consistently are reviewed and recommendations are made with respect to amounts of caffeine appropriate for maintaining alertness of military personnel during field operations. Recommendations are also provided on the need for appropriate labeling of caffeine-containing supplements, and education of military personnel on the use of these supplements. A brief review of some alternatives to caffeine is also provided.
