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Titolo	Soldier protective clothing and equipment [[electronic resource]] : feasibility of chemical testing using a fully articulated robotic mannequin / / Committee on Full-System Testing and Evaluation of Personal Protection Equipment Ensembles in Simulated Chemical-Warfare Environments, Board on Chemical Sciences and Technology, Division on Earth and Life Studies, National Research Council of the National Academies
Pubbl/distr/stampa	Washington, D.C., : National Academies Press, c2008
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Soggetti	Chemicals - Safety measures - Testing Protective clothing - Testing Soldiers - Equipment and supplies - Quality control Electronic books.
Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	""Front Matter""; ""Acknowledgment of Reviewers""; ""Preface""; ""Contents""; ""Summary""; ""1 Introduction""; ""2 Design Challenge: Simulation of Human Physiology""; ""3 Design Challenge: Mannequin Under-Ensemble Sensing""; ""4 Design Challenge: Robotic Capability for PETMAN""; ""5 Design Challenge: PETMAN Surface Structure and Materials""; ""6 Design Challenge: An Integrated PETMAN System""; ""7 A Complementary Approach to Meeting PETMAN System Goals""; ""8 Overarching Conclusions and Recommendations""; ""Appendixes""; ""Appendix A: Statement of Task"" ""Appendix B: Description of the PETMAN System Feasibility Study"" Appendix C: Committee Biographic Information""; ""Appendix D: Open Session Presentation Summaries""
Sommario/riassunto	There is an ongoing need to test and ensure effectiveness of personal

protective equipment that soldiers use to protect themselves against chemical warfare agents. However, testing using human subjects presents major challenges and current human-size thermal mannequins have limited testing capabilities. The U.S. Department of Defense (DOD) along with their counterparts from other countries are seeking to develop more human like mannequins, which would include features like human motion, in order to carry out more advanced chemical testing. At the request of DOD Product Director, Test Equipment, Strategy and Support, the National Research Council formed an ad hoc committee to evaluate the feasibility of developing an advanced humanoid robot, or Protection Ensemble Test Mannequin (PETMAN) system that meets the DOD requirements. The book concludes that although most of the individual requirements can technically be met, fulfilling all of the requirements is currently not possible. Based on this conclusion the committee recommends that DOD considers three issues, prioritization of current system requirements, use qualified contractor for particular technical aspects, incorporate complementary testing approaches to the PETMAN system.
