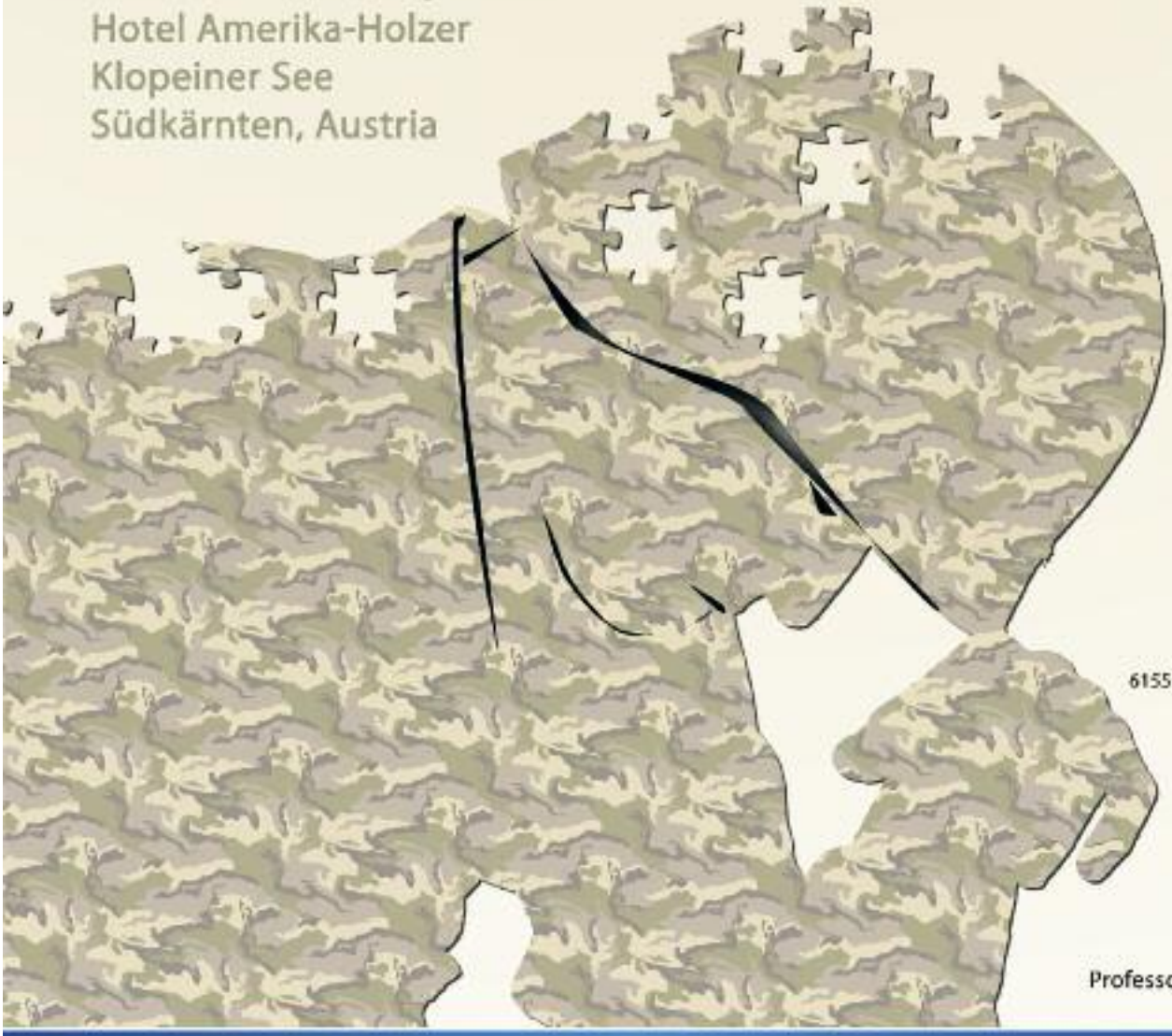
NATO Advanced Research Workshop

Wounds of War II: Coping with Posttraumatic Stress Disorder in Returning Troops

October 18-21, 2009
Hotel Amerika-Holzer
Klopeiner See
Südkärnten, Austria



Interactive Media Institute
U.S. Headquarters
6155 Cornerstone Court East, Suite 210
San Diego, CA 92121
Toll Free: 1-866-822-8762
Fax : 1-858-642-0285
European Headquarters
28/7, rue de la Loi
B-1040 Brussels, Belgium
E-Mail: office @vrphobia.eu
Telephone: +32 / 2 / 286 8505
Facsimile: +32 / 2 / 286 8508

Professor Dr. Brenda K. Wiederhold
b@vrphobia.eu

NATO OTAN

This publication is supported by:

The NATO Science for Peace and Security Programme

SCIENTIFIC PROGRAM
TABLE OF CONTENTS

NATO OTAN
This publication is supported by:
The NATO Science for Peace and Security Programme

1. INTRODUCTION

This Advanced Research Workshop is being convened to discuss the topic of increased PTSD in our service men and women. Research has shown that those who have served in both combat missions and peacekeeping operations are at an increased risk for PTSD. Some wounds may be more "invisible" such as PTSD, depression, stress, and chronic pain, while others are more visibly apparent such as physical disabilities.

This specialized workshop will explore five main criteria:

1. Vulnerability to PTSD: are certain types of people at higher risk for getting PTSD (background, ethnicity, childhood trauma, etc)?
2. Diagnostic and Assessment Issues surrounding PTSD which methods are used to diagnose and assess the disorder?
3. Preventing PTSD in soldiers: What ways can the military prepare soldiers to lower their likelihood of developing PTSD?
4. Treatment of PTSD: What are the latest treatment and therapy opportunities for soldiers after they have been diagnosed with PTSD?
5. PTSD & Comorbidity: What are the symptoms and consequences associated with PTSD? How does PTSD affect familes and societies? Do individuals with PTSD have a higher risk of developing physical disorders or other mental disorders?

Our hope is that through this workshop, we can come to understand what programs are already in place for detection, assessment, prevention, and treatment. We can then learn from these existing plans and begin to formulate a more common set of best practices and guidelines which can be implemented throughout organizations in all our countries; having as our common goal to always seek to serve our service members more effectively.

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

2. SPONSORS

Workshop organizers Interactive Media Institute and Interactive Media Institute-Europe would like to thank the sponsors of this Advanced Research Workshop listed below. Without their support this event could not have taken place.

North Atlantic Treaty Organization (NATO)

NATO OTAN

This publication is supported by: The NATO Science for Peace and Security Programme

Social Welfare Croatia

Ministry of Health and Social Welfare

University Hospital Dubrava

FER
UNIVERSITY OF ZAGREB
FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING

United States Army Medical Research and Materiel Command

PROTECT
PROJECT · SUSTAIN

Virtual Reality Medical Center

Austrian Ministry of Defence (MOD)

bundesheer

3. CO-CHAIRS

Professor Brenda K. Wiederhold PhD, MBA, BCIA
Interactive Media Institute
6155 Cornerstone Court East Suite 210
San Diego, CA 92121
Tel: +1 858 642 0267 Fax: +1 858 642 0285
Interactive Media Institute-Europe
Rue de la Loi, 28/7 Tel: +32 2 286 8505
B-1040 Brussels, Belgium Fax: +32 2 286 8508
E-mail: bwiederhold@vrphobia.com, b@vrphobia.eu

Professor Dragica Kozarić Kovačić, MD, PhD
University Hospital Dubrava Tel: +385 1 290 26 18
Department of Psychiatry Fax: +385 1 290 37 00
Referral Centre for Stress-related Disorders, E-mail: dkozaric_kovacic@yahoo.com
of the Ministry of Health
Regional Centre for Psychotrauma Zagreb
Avenija Gojka Šuška 6, 10 000 Zagreb, Croatia.

Professor Kresimir Cosic, PhD
University of Zagreb, E-mail: kcosic@sabor.sabor.hr
Faculty of Electrical Engineering & Computing
Head of the Delegation to the NATO Parliamentary Assembly

Colonel Carl Castro, PhD
United States Army Medical Research and Materiel Command
United States Army
Tel: +1 301 619 7301
E-mail: carl.castro@us.army.mil

4. MEETING SITE

The Advanced Research Workshop (ARW) entitled “Wounds of War 2: Coping with Posttraumatic Stress Disorder in Returning Troops” will be held 18-21 October 2009 at:

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Hotel Amerika-Holzer am See
Am See IX
9122 St. Kanzian
Südkämten, Austria
Tel.: +43 4239/2212
E-mail: hotel@amerika-holzer.at
http://www.amerika-holzer.at

Registration on Sunday 18 October 2009 will take place in the Conference area from 8:00 to 20:00.

All participants are kindly reminded to bring a passport or ID card with them in order to obtain a security badge to gain access to the workshop events. A badge will be issued to each participant registered. You are kindly requested to take care of your badge. Badges will not be reissued during the week.

You are requested to wear your Meeting badge at all times in the Conference Area and at all workshop events.

NATO OTAN
This publication is supported by:
The NATO Science for Peace and Security Programme

PROGRAM GUIDE

Sunday, October 18
During day: Arrival of Participants with complimentary transfer from
Klagenfurt Airport (on hotel shuttle; please arrange with the hotel beforehand)
Accommodations: Hotel Amerika-Holzer, Klopeiner See-Sudkarnten, Austria
Workshop Venue: Hotel Amerika-Holzer

1**8:00-20:00** Registration

19:00 Welcome Reception

21:30 Digestiv

Day 1 – Monday, October 19

7:30-9:00 Breakfast

Opening Remarks

8:55 Introduction
Professor Dr. Brenda K. Wiederhold
Interactive Media Institute
United States of America

9:00 Welcome
BrigGen. Mag. Thomas Starlinger
Ministry of Defence
Austria

9:20 Message on behalf of *U.S. Congresswoman Grace Napolitano*
Co-chair, Congressional Mental Health Caucus

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

9:25 Welcome
Colonel Dr. Carl Castro
United States Army Medical Research and Materiel Command
United States of America

Session I – Setting the Stage: Vulnerability
Session Chair: *Colonel Dr. Carl Castro*

9:30 "Possible Involvement of Epigenetic Mechanisms in the Neurobiology of PTSD"
Professor Dr. Alja Videtic
Ljubljana University Psychiatric Hospital
Slovenia

9:50 "Genes-Environment Interaction and Development of PTSD"
Professor Dr. Vsevolod Rozanov
Human Ecological Health, Odessa
Ukraine

10:10 "Course and prognosis of Acute stress reaction after combat experience"
Professor Dr. Tanja Frančišković
Regional Psychotrauma Center Rijeka
Croatia

10:30 "Genetic Markers in Suicidal and Non-Suicidal Veterans with Combat Related PTSD"
Professor Dr. Nela Pivac
Rudjer Boskovic Institute
Croatia

10:50 Panel Discussion

11:10 Coffee Break-Group Photo

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Session II: Diagnosis and Assessment
Session Chair: *Professor Dr. Nela Pivac*

11:40 "Conceptualizing, Diagnosing and Treating Combat-Related Traumatic Stress"
Colonel Dr. Carl Castro
United States Army Medical Research and Materiel Command
United States of America

12:00 "Psychological Screening Procedures for Relocated Soldiers of the Austrian Armed Forces"
Major Mag. Helmut Slop
AJFC/Centre for Operations Preparation
Austria

12:20 "Phase I Development of an Optimal Psychosocial Care Pathway for UK Veterans Discharged from the Armed Forces"
Mr. Neil Kitchiner
University Hospital of Wales
Department of Traumatic Stress
United Kingdom

12:40 Panel Discussion

13:00 Lunch

14:30 Welcome
Professor Dr. Dragica Kozarić-Kovačić
University Hospital Dubrava Department of Psychiatry
Croatia

Session III: Training and Treatment
Session Chair: *Professor Dr. Dragica Kozarić-Kovačić*

14:40 "Proteomics and PTSD"
Professor Vanda Filipac
University Hospital Dubrava
Croatia

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

15:00 "Psychological Effects of the Long War: Strategies for Mitigation"
Colonel Dr. Elspeth Cameron Ritchie
United States Army
United States of America

15:20 "Integrative Diagnostic Approach to PTSD and Aggression"
Dr. Igor Marinić
University Hospital Dubrava Department of Psychiatry
Croatia

15:40 "Evaluation of a Psychotherapeutic Treatment Program For PTSD"
Dr. Dolores Britvic
Croatia

16:00 Coffee Break

16:30 "Israel Ministry of Defense Clinical Guidelines for Treatment of PTSD Among IDF Veterans"
Professor Dr. Miki Doron
School of Time Limited Focused Psychotherapy
Israel

16:50 "Psychological Support for the Roumanian Combat Troops Before, During and After Deployment"
Professor Dr. Maria Magdalena Macarenco
Office of the Surgeon General of Romania
Romania

17:10 Panel Discussion

20:00 Group Dinner

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Day 2 – Tuesday, October 20

7:30-8:30 Breakfast

8:40 Brief Review of Day 1 and Introduction to Day 2
Professor Dr. Brenda K. Wiederhold
Interactive Media Institute
United States of America

Session IV: Technology-Based Training and Treatment
Session Chair: *Colonel Todd Yosick*

8:50 "Use of Virtual Reality in a Continuum of Care"
Professor Dr. James Spira
Virtual Reality Medical Center
United States of America

9:10 "PTSD Treatment by Means of the Controlled Stress Exposition Method in Virtual Reality, and a Behavioral Training"
Professor Dr. Stanislaw Ilnicki
Head, Department of Psychiatry and Combat Stress
Military Institute of Health Services
Poland

9:30 "Virtual Reality and Biofeedback to Help Warfighters Deal with Stress"
Major Dr. Melba Stetz
United States Army
United States of America

9:50 Panel Discussion

10:20 Coffee Break

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

10:30 "Treatment of Veterans of Polish Military Contingents with Diagnosed PTSD"
Prof. Dr. Maciej Zbyszewski
Military Institute of Health Services
Poland

10:50 "An Explorative Study into a Tele-Delivered Multi-Patient VR Exposure Therapy System"
Professor Dr. Willem-Paul Brinkman
Delft University of Technology
Netherlands

11:10 "Interreality in the Treatment of PTSD: Rationale and Protocol"
Professor Dr. Alessandra Gorini
Istituto Auxologico Italiano, Catholic University
Italy

11:30 Panel Discussion

12:00-13:15 Lunch

13:15-16:00 Working Group Sessions

Group 1–Vulnerability, Detection & Assessment
Group Leaders: *Professor Dr. Nela Pivac & Major Melba Stetz*

Group 2–Prevention and Training
Group Leaders: *Colonel Dr. Carl Castro & Professor Dr. Neil Kitchiner*

Group 3–Treatment Issues
Group Leaders: *Professor Dr. Dragica Kozarić-Kovačić & Professor Dr. James Spira*

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

16:00 Bus ride to monastery and art exhibit (St. Paul) - casual wear

16:30-18:00 Monastery and art exhibit (St. Paul)

18:00-19:00 Stable (small snack)

19:00-19:30 Bus ride back to hotel

20:00 Traditional Carinthia dinner at Restaurant Sicher

Day 3–Wednesday, October 21

7:30-9:00 Breakfast

Session V–PTSD & Comorbidity

9:30 Brief Review of Day 2 and Introduction to Day 3
Professor Dr. Brenda K. Wiederhold
Interactive Media Institute
United States of America

9:35 "The Emergence of Total Fitness Within The United States Department of Defense"
Major Todd Yosick
Office of the Assistant Secretary of Defense
United States of America

10:00 "Action of War-PTSD in Families as Bio-Psycho-Social Systems?"
Dr. Dietmar Golth
Peace Keeping and Stress Management
Austria

10:20 "PTSD, mTBI, Depression and Substance Abuse as a Function of Combat Deployment"
Professor Dr. Robert L. Bray
Research Triangle Institute International
United States of America

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

10:40 Coffee Break

11:10 "Symptom prevalence of PTSD, Anxiety, Depression, Level of Exposure & Mediating Factors on a Population from Southern Lebanon"
Professor Dr. Laila Farhood
American University of Beirut
Lebanon

11:30 "Correlation of Suicidal Thoughts with PTSD, Emotional Distress and Depression the in Population of Kosovo Six Years after the War"
Professor Dr. Ferid Agani
University of Prishtina
Albania

11:50 Panel Discussion

12:20-14:00 Lunch break

Reports from Working Groups

14:00 Working Group 1
Group Leaders: *Professor Dr. Nela Pivac & Major Melba Stetz*

14:30 Working Group 2
Group Leaders: *Colonel Dr. Carl Castro & Mr. Neil Kitchiner*

15:00 Working Group 3
Group Leaders: *Professor Dr. Dragica Kozarić-Kovačić & Professor Dr. James Spira*

15:30 Coffee Break

16:30 Closing Comments

20:00 Gala Dinner

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

SESSION I: VULNERABILITY

Possible Involvement of Epigenetic Mechanisms in the Neurobiology of PTSD

Alja Videtic, PhD[a,1]

[a]Ljubljana University Psychiatric Hospital, Studenec 48, 1260 Ljubljana Polje, Slovenia

Exposure to a traumatic event is required for the diagnosis of posttraumatic stress disorder (PTSD). However the relation between psychopathological events, the phenomenology of the trauma and neurobiological changes related to PTSD is not totally understood. The symptoms of PTSD are believed to reflect stress-induced changes in neurobiological systems representing an inadequate adaptation of neurobiological systems to exposure to severe stressors. Attempts are made to relate different neurobiological changes to the specific features represented in PTSD. It is not clear whether certain neurobiological changes in PTSD reflect preexisting vulnerability or consequences of trauma exposure. It is known that early life environmental events have persisting effects on central nervous tissue structure and function, a phenomenon called 'developmental programming'. Further it is known that glucocorticoid hormone mediators may be involved in this process. It was suggested that changes in glucocorticoid system are mediated by tissue-specific changes in gene expression. Recent studies suggest that epigenetic mechanisms may play an important role in the interplay between stress exposure and genetic vulnerability. In preclinical studies it was first suggested that epigenetic mechanisms may be involved in the modulation of gene expression in response to stressful stimuli. Recently, epigenetic differences in a neuron-specific glucocorticoid receptor (NR3C1) promoter between postmortem hippocampus obtained from suicide victims with a history of childhood abuse and those from either suicide victims with no childhood abuse or controls were found, indicating the involvement of these mechanisms in human adaptation to stress.

Beside DNA metilation, histone modulation is involved in epigenetic regulation of gene expression by regulation of diverse chromatin-templated processes, including transcription. These covalent modifications of histones, including phosphorylation, acetylation, ubiquitination, deimination, and methylation, affect therefore the numerous processes involving chromatin, such as replication, repair, transcription, genome stability, and cell death. PTSD may both act as environmental challenges if present in early life and may themselves be more likely in individuals made 'vulnerable' by early life stress or even by appearance of PTSD in their parents.

[1]Corresponding author: Alja Videtic, PhD, 1Ljubljana University Psychiatric Hospital, Studenec 48, 1260 Ljubljana Polje Slovenia, Tel: 38615437661, E-mail: alja.videtic@mf.uni-lj.si

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Genes-Environment Interaction and Development of PTSD

Vsevolod Rozanov, PhD, MD[a,1]

[a]Institute of Post-dipolma Education, Odessa National Mechnikov University, Odessa, Ukraine

In modern society up to 80% of people experience serious stressful life events, but only 10% of women and 5% of men may develop PTSD during their lives. On the other hand, people who are really predisposed to PTSD will not develop it because they will luckily not experience a severe and assaulting stress. In some occupations (military for instance) PTSD is much more frequent due to specific environment and exposures. On the other hand, these occupations are somehow selecting specific personalities which may be prone (or resilient) to specific stressors. It is obvious that "genes-environment interaction" has very much to do with possible outcomes within this context. In classical behavioral genetics "genes-environment co-variation" is a theoretical concept explaining how genetic predispositions can be connected to environmental factors in a bi-lateral manner, consisting of passive (i.e. the child inherits specific environment together with genes from parents), reactive (i.e. when parents react positively or negatively to child's traits) and proactive (i.e. when human being seems to select an environment for himself which somehow fits his/her genetic make-up).

Recently with a tremendous progress in human genomics a number of candidates genes have been studied in relation to PTSD diagnosis, including genes representing dopaminergic system, serotonin system and stress-related neuro-humoral system, including hormone receptors. Identification of genetic make-up associated with PTSD is facilitated by comparatively well defined phenotype (symptoms of PTSD are rather distinct, neuroanatomical correlates are known and can be visualized by modern brain-imaging techniques) but is impaired by great (up to 60%) overlapping with other disorders and psychopathologies. After the well known findings of A.Caspi and T.Moffit (showing that depression outcomes in young people are modulated by interaction of stressful events with specific variants of the functional polymorphism of the serotonin transporter gene promoter in the early childhood) the studies on genes-environment interaction in genesis of stress-related conditions were enhanced. Recent reviews on the topic are suggesting that genes-environment interactions during early life adversities may be crucial for future reactivity to assaulting stress due to specific mechanisms of stress hormones effects on the immature brain. These mechanisms involve genes expression regulation and may have "organizational effects", i.e. can last for long periods of time, often for the entire life of the individual. Thus, they may be referred as epigenetic effects.

[1]Corresponding author: Vsevolod Rozanov, PhD, MD,, Institute of Post-dipolma Education, Odessa National Mechnikov University, Odessa, Ukraine, rozanov@te.net.ua

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Another factors deeply involved in the genes-environment interaction mechanisms are temperament and personality. Personality modulates stress reactions and coping styles, involving cognitive mechanisms and emotional reactions. Personality itself (and temperament in particular) is also based on genetic make-up and environmental factors, thus forming another contour of genes-environment interaction. As a result genes and environment produce a complex interaction like opposite mirrors, pushing an individual to enhanced vulnerability or to resilience. The nature of resilience remains much more obscure than the nature of vulnerability in terms of genetic mechanisms, because it is more based on psychological, social and spiritual dimensions. Recent published results directly addressing the issue of genes-environment interaction in PTSD (E.Binder et al., 2008) conclude that several SNPs near gene FKBP5 (binding protein involved in reactivity of cortisol receptor) significantly interact with the severity of child abuse to predict level of adult PTSD symptoms. Thus, there is a future perspective to study genes-environment interaction to understand mechanisms of PTSD development, which may lead to predictive tests appearance and formulation of protective strategies.

Course and Prognosis of Acute Stress Reaction After Combat Experience

Professor Dr. Tanja Frančišković[a]

[a]Regional Psychotrauma Center Rijeka, KBC Rijeka, Croatia

Acute stress reaction (ASR) due to combat stress has always been unwanted accompanist of war. During the war in Croatia number of soldiers was referred to psychiatrists for ASR on combat stress. The aim of this study was to determinate the clinical presentation and treatment outcomes in soldiers coming for psychological help during the most intensive combat period 1991/92 because of stress reaction. Furthermore, we wanted to ascertain whether ASR is one of predictor of PTSD ten years later, could treatment for ASR be preventive for PTSD and whether we could determine factors influencing the development of posttraumatic disorder.
From 350 patient charts of soldiers who visited psychiatrist during 1991 and 1992 due to acute psychical disturbance we analyze the available data on the symptoms and course of treatment. Out of that number, 96 persons took part in research after ten years. This time we applied General demographic questionnare, Harvard trauma questionnaire, M -PTSD, BDI, STAI, SCL-90 and Cope Questionnaire.
Soldiers who sought psychiatric service for ASR had on average 112 days of frontline experience, they came mostly once or twice to psychiatrist.64,9% of them went back to the front, 16.5 % were demobilisated,4% of them are still in the psychiatric treatment. Group debriefing seems to be a successful therapeutic technique in ASR in shortening disability period but had no preventive effects on development of PTSD. Ten years after 26% veterans suffered from PTSD. Those with and without PTSD do not differ in age, socioecconomical status, length of military service, treatment of Acute stress reaction and return to the frontline after recovery from Acute stress reaction. Veterans with PTSD had higher level of anxiety, depression and somatisation. In comparison to veterans without PTSD, the most significant indicator of development of PTSD was number of traumatic events and prevalent use of avoidance as a coping strategy.

[1]Corresponding author: Tanja Frančišković, MD, PhD, Regional Psychotrauma Center Rijeka, KBC Rijeka, Croatia, Tel: 38551311057, E-mail tanja.franciskovic@medri.hr

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Genetic Markers in Suicidal and Non-Suicidal Veterans with Combat-Related PTSD

Nela PIVAC[a,1], Dragica KOZARIĆ-KOVAČIĆ[b], Gordana NEDIĆ[a] , Matea NIKOLAC[a] , Maja MUSTAPIĆ[a] , Ana BABIĆ[a] , Mirjana GRUBIŠIĆ-ILIĆ[b], Zrnka KOVAČIĆ[c], Dorotea MÜCK-ŠELER[a]

[a]Division of Molecular Medicine, Rudjer Boskovic Institute, Bijenička cesta 54, HR-10002 Zagreb, Croatia,
[b]Referral Centre of the Ministry of Health and Social Welfare of the Republic of Croatia for the Stress Related Disorders, Department of Psychiatry, Dubrava University Hospital, HR-10000 Zagreb, Croatia,
[c]Croatian Institute for BrainRresearch, Department of Psychopharmacology, School of Medicine, University of Zagreb, Pychiatric Hospital Vrapče, HR-10000 Zagreb, Croatia

Posttraumatic stress disorder (PTSD) is a complex polygenic psychiatric disorder, precipitated by an exposure to a traumatic event. The risk factors for PTSD include, besides traumatic experience, other biological, genetic, environmental factors, and adversity in early life. Genetic studies in PTSD are still scarce. Combat-related PTSD is especially pervasive form of PTSD, frequently associated with suicidal behavior. Various markers of serotonin (5-HT), dopamine, noradrenalin, hypothalamic-pituitary-adrenal axis function, brain derived neurotrophic factor (BDNF), and catechol-o-methyltransferase (COMT) have been proposed as the possible markers of PTSD and/or suicidal behavior. Our study determined polymorphisms of the genes for monoamine oxidase (MAO-B), dopamine-beta-hydroxylase (DBH), COMT, BDNF, serotonin transporter (5-HTT) and serotonin 5HT2A receptor in male Croatian war veterans with combat related PTSD, subdivided into non-suicidal and suicidal subjects. There were no significant differences in the frequencies of the genotypes or alleles for MAO-B, -1021C/T DBH, Val158/108Met COMT, Val66Met BDNF, 5-HTTLPR and 102T/C 5HT2A between suicidal and non-suicidal veterans with PTSD. Our results did not support the hypothesis that these genetic variants contributed to the risk of suicidal behavior in combat- related PTSD. Since both suicidal behavior and clinical features of PTSD are heterogeneous and complex, the research of the risk genes is associated with numerous methodological difficulties, especially with the problem of detecting a significant effect. The identification of subjects prone to suicidal behavior is important for the prevention of suicidal attempts and proper treatment interventions, and therefore future studies should elucidate the relationship between candidate genetic risk factors and suicidal behavior in the large homogenous sample of veterans with PTSD.

[1]The corresponding author: a1Nela Pivac, DVM, PhD, senior scientist, Division of Molecular Medicine, Rudjer Boskovic Institute, POBox 180, HR-10002 Zagreb, Croatia, Tel: 385 1 4571 207; Fax: 385 1 456 1010; E-mail: npivac@irb.hr

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

SESSION II: DIAGNOSIS & ASSESSMENT

Conceptualizing, Diagnosing, and Treating Combat-Related Traumatic Stress

Colonel Carl Castro, PhD[a,1]

[a]United States Army Medical Research and Materiel Command, United States Army

Traditionally, traumatic stress has been viewed from a victim's perspective, and this perspective has influenced the way in which traumatic stress is conceptualized, diagnosed, and treated. Soldiers deploying to combat, however, are active participants in events and trained for traumatic events as part of their occupation. In this paper, an occupational model for traumatic stress is proposed. The current approach to posttraumatic stress disorder (PTSD) fails to distinguish between individuals who develop PTSD as a victim of some traumatic event from individuals who develop PTSD as part of an occupation for which they are trained. Thus, victims of natural disasters, personal violence, and accidents are placed in the same diagnostic category as service members exposed to combat. Victim-based PTSD makes several fundamental assumptions that are not consistent with an occupational health approach to PTSD. First, the victim model views the individual as a passive victim of a potentially traumatic event; whereas an occupational model views potentially traumatic events as part of the job. Second, the victim-based Diagnostic and Statistical Manual for Mental Disorders (DSM)-IV approach presumes exposure to a single discrete event at one point in time. In contrast, an occupational model accounts for the fact that deployments can involve exposure to numerous and varied potentially traumatic events over time. Third, the current DSM-IV ignores the social context of the traumatic event. In an occupational model, this social context is critical. In the case of the military, traumatic events do not occur to individuals but to teams of service members who have formed strong personal relationships with one another. Fourth, the current DSM model assumes that all of the symptoms follow exposure to a traumatic event. This makes sense in the case of a victim-based approach in which the individual is surprised by a traumatic event that they are not prepared. Within the military deployment context, however, many of the symptoms for PTSD existprior to the occurrence of a specific traumatic event. Incorporating an occupational model into the diagnosis and treatment of combat-related PTSD is complex but provides a basis from which this reconceptualization can begin.

This model addresses the way in which preparation and training for potentially traumatic experiences changes the way in which combat-related traumatic events are experienced. By adopting an occupational framework, new interventions for combat-related traumatic stress can be targeted to address the needs of the deployed soldier.

[1]Corresponding author: Tel: +1 301 619 7301, E-mail: Carl.Castro@amedd.army.mil]

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Psychological Screening Procedure for Relocated Soldiers of the Austrian Armed Forces

Major Mag. Helmut Slop[a,1]

[a]Centre for Operations Preparation, Götzendorf, Austria

The Austrian Centre for Operations Preparation (COP) is the organizational body of the Austrian Armed Forces to provide for international and multinational tasks, especially for the preparation and redeployment activities of Peace Support Operations (PSO). The two military psychologists of the COP are responsible for the adequate psychological training and preparation for deployment, the accompanying psychological care-giving for soldiers and their relatives during the mission, but also for the homecoming phase after the end of mission. If necessary, e.g. in case of severe stress symptoms, psychopathological reactions or posttraumatic stress disorder, clinical psychological treatment is provided.

Psychological post-mission measures include psychological preparation for redeployment, feedback through after-deployment questionnaires, psychological debriefing and screening of each homecomer, application of the screening instrument "Homecomer-Check-List" (HCL), and provision of further clinical psychological treatment.

The various psychological measures applied during all phases of PSO, especially after the 2007 homecoming- and after-deployment phase, were brought more into focus. The applied psychological measures help to make the repatriation more effective and the homecoming more successful for all persons involved. One of the current intentions of the Austrian Armed Forces Psychological Service is the establishment of a trauma-center with two clinical psychologists for the treatment of PTSD-patients.

The presentation gives a short overview of the psychological measures applied at the COP for relocated soldiers after Peace Support Operations of the Austrian Armed Forces.

[1]Corresponding author: Major Mag. Helmut Slop, AJFC/Centre for Operations Preparation, Camp Wallenstein, Wienerstraße 360, 2434 Gotzendorf, Austria, Tel: 3502012222225, E-mail: helmut.slop@gmx.at

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Phase I Development of an Optimal Psychosocial Care Pathway for UK Veterans Discharged from the Armed Forces

Mr. Neil Kitchiner[a,1]

[a]Cardiff & Vale NHS Trust, Department of Traumatic Stress, Monmouth House, University Hospital of Wales, United Kingdom

In the United Kingdom there has traditionally been no special provision made for the estimated ten million plus veterans and their dependents. Veterans' health and social needs are officially catered for by statutory services such as the National Health Service and local authorities. The Welsh Assembly Government and the Ministry of Defense are committed to improving support and treatment within the NHS for veterans. As a result the Cardiff and Vale of Glamorgan, NHS Traumatic Stress Service has been funded, as one of several pilot sites across the UK, to improve services for veterans.

This paper will describe the development of veterans psychosocial care pathway which was informed by data generated within focus groups with veterans, their careers, and experts who work with veterans. This data led to the development of a prototype care pathway which is currently being tested on ten ill veterans and will be modified in light of their feedback. Themes and outcomes self-report data on several psychiatric symptoms that will also be presented to demonstrate how useful the psychosocial care pathway has been in promoting wellness in these veterans.

[1]Corresponding author: Neil Kitchiner, Cardiff & Vale NHS Trust, Department of Traumatic Stress, Monmouth House, University Hospital of Wales, United Kingdom, E-mail: neiljkitchiner@gmail.com

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

SESSION III: TRAINING AND TREATMENT

Proteomics and Post-Traumatic Stress Disorder (PTSD)

D. Kozarić-Kovačić[a,1], K. Pavelić[b], V. Filipac[a], M. Cindrić[c], S Vučinić[c], S. Kraljević Pavelić[b,c]

[a]Department od Psychiatry, University Hospital Dubrava, Referral Centre for Stress Related Disorders of the Ministry of Health and Social Care of the Republic of Croatia, The Regional Centre for Psychotrauma, Zagreb, Croatia
[b]Department of Biotechnology, University of Rijeka
[c]Ruđer Bošković Institute, Department for Molecular Medicine, Centre for Proteomics and Mass Spectrometry, Zagreb, Croatia

Proteomics is a branch of biological sciences concerned with proteome research. Proteome studying involves structural and interaction analysis of proteins on a large scale, especially their position and function. Through comparison of the qualitative and quantitative protein expression data from the healthy and diseased states it is possible to find biomarkers characteristic of the specific disorder using the technique of differential display. As protein expression is the mediator of genetic vulnerability, proteomics is enabling research into aetiology of the psychiatric disorders by discovering potential biomarkers. They could fill gaps in the extremely complex diagnostics of PTSD, and potentially show the direction for further development of pharmacotherapy. Previous studies have shown qualitative and quantitative changes in the brain and cerebrospinal fluid proteins in many neurodegenerative and some psychiatric disorders. In this study our aim was to show the differential display of the proteomic profiles from the serums of 3 patients with PTSD compared to 3 healthy controls. Chosen participants with PTSD were of the similar age and had similar traumatic experiences. They were treated with psychotropic medication from the same group. The participants were treated and diagnosed at the Reference Centre for Stresss Related Disorders of the Department of Psychiatry, University Hospital Dubrava, who were part of the database including the participants affected by war related PTSD, participants, who had war experiences, but did not develop PTSD and healthy controls, who did not have war experiences. The participants were diagnosed by psychiatrists according to the International Classification of the Diseases – 10 (ICD-10), using Mini International Diagnostic Interview (MINI) and Clinical Scale for PTSD (CAPS), as well as other psychiatric scales. The participants had no comorbid physical illnesses. Large-scale PTSD participant serum proteomic approach and mass spectrometry human proteomic databases were employed as identification tool for discovering the differences. Results indicated direction for the larger analysis of this type in people with PTSD. In this pilot

[1]Corresponding author: D. Kozarić-Kovačić, Department od Psychiatry, University Hospital Dubrava, Referral Centre for Stress Related Disorders of the Ministry of Health and Social Care of the Republic of Croatia, The Regional Centre for Psychotrauma, Zagreb, Croatia, E-mail: dkozaric_kovacic@yahoo.com

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

study there were found 122 qualitatively different proteins and more than 22 quantitative differences. Selected group of proteins found in differential display of the 2-dimensional gels will be used for identification of the biomarkers in the further studies. This pilot study offers a good basis for further proteomic research, which could help in better diagnosis and treatment of PTSD, as well as clarification of its aetiology.

NATO OTAN
This publication is supported by:
The NATO Science for Peace and Security Programme

Psychological Effects of the Long War: Strategies for Mitigation

Colonel Elspeth Cameron Ritchie[a]

Seven years of war and repeated deployments have led to both physical and psychological wounds. This abstract will discuss both old and new challenges, including suicide, post-traumatic Stress Disorder, traumatic brain injury, and pain management. While an array of behavioral health services has long been available to address the strain on our Soldiers and Families, these services are clearly strained. These services include Combat and Operational Stress Control, routine behavioral health care, and suicide prevention. Chaplains, Military One Source, and Army Community Service also offer support. We have multiple other initiatives to provide outreach, education and training, including "Battlemind", Combat and Operational Stress Control, Operational Stress Control and Readiness (OSCAR), and RESPECT-MIL There continue to be major challenges that will face our service members, their Families and the nation.

Objectives

1. Know the psychological effects of war, including PTSD and mild TBI.
2. Understand the breadth of programs to mitigate the psychological effects.

[1]Corresponding author: Colonel Elspeth Cameron Ritchie, US Army, 5109 Leesburg Pike, Skyline 6, Room 684, Falls Church, Virginia, United States, E-mail: Elspeth.Ritchie@us.army.mil

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Integrative Diagnostic Approach to PTSD and Aggression

D. Kozarić-Kovačić, M. Grubišić-Ilić, I. Marinić, PhD[a]

Aggression or impulsivity is often connected with patients with posttraumatic stress disorder and even DSM IV criteria include "irritability and outbursts of anger" as one of persistent symptoms of increased arousal. In this paper we will review recent theories regarding aggression in patients with posttraumatic stress disorder and demonstrate our integrative diagnostic approach to the problem. Results of our studies with the aim of better defining the patients with posttraumatic stress disorder characterized by aggressive traits and work with this population of patients will be presented and some characteristics defining this group of patients will be shown.

[1]Corresponding author: Dr. Igor Marinic, Department of Psychiatry, University Hospital Dubrava, Zagreb, Croatia, E-mail: igor.marinic@gmail.com

This publication is supported by: The NATO Science for Peace and Security Programme

Evaluation of Psychotherapeutic Treatment Program for Post-traumatic Stress Disorder

Dolores Britvić, MD, PhD, Vesna Antičević, Ivan Urlić, Goran Dodig, Branka Lapenda, Vesna Kekez

The aim of this study is to assess the effectiveness of psychotherapeutic model of treatment of war veterans in Croatia with Posttraumatic Stress Disorder (PTSD) on the basis of its symptoms, neurotic symptoms, depression, ways of coping with stress, and indictors of quality of life. Prospective cohort study involved 77 war veterans who participated in psychotherapeutic model of treatment lasting 40 weeks. They were coming twice weekly and on each visit, there were three types of group sessions: socio-therapeutic, psycho-educative, and trauma-focused group respectively. The Mississippi Scale for PTSD was used for assessing the intensity of PTSD symptoms, Crown-Crisp Index for neurotic symptoms, Inventory of dispositional and situational coping with stress, Quality of Life Scale (QLS) for indicators of quality of life, and Beck Depression Inventory for depression at the beginning and end of the psychotherapeutic program and a follow-up one year later.

The results of this study shows that the psychotherapeutic treatment program leads to changes in ways of coping with stress, reduces depressiveness, and decreases in symptoms of PTSD, but it does not bring significant changes, neurotic symptoms, or scores on the QLS.

[1]Corresponding author: Dolores Britvić, MD, PhD, dbritvic@globalnet.hr

This publication is supported by: The NATO Science for Peace and Security Programme

Israel Ministry of Defense Clinical Guidelines for Treatment of PTSD Among IDF Veterans

J. Zohar[1,a], M. Doron, PhD, MA, MHA[a], M. Lahad[a]

[a]Israeli Consortium on PTSD

A multi-year survey of Ministry of Defense veterans diagnosed with posttraumatic stress disorder (PTSD) revealed that across time, and despite treatment, there is deterioration in their condition. The discrepancy between the results (deterioration) and the investment (treatment and compensation by the Ministry of Defense) highlighted the need to update (and perhaps improve) treatment for PTSD.

The guidelines are based on guidelines presented by various bodies (see references), on the material accumulated in the multi-year survey and the existing literature. The members of the consortium (Zohar J, Bleich A, Dolphin D, Doron M, Weisman Z, Lahad M, Lubin G, Nuri A, Uri A., Polakevitch Y, Fostick L, Klein E, Kaplan Z, Shalev A, Sharon D) met to write the guidelines, together with professional committees such as The Committee for Pharmacotherapy, The Committee for Rehabilitation and Employment, The Committee for Training Therapists, etc.

The draft of the guidelines was distributed to psychiatric associations, and the comments and clarifications that were received were incorporated. The guidelines are unique in the integration of five disciplines: psychological treatment, pharmacological treatment, family and couples therapy, sex therapy, and employment/occupational placement.

The guidelines include a time axis with the distinction between acute conditions (up to one year), sub acute (up to three years), and sub chronic (up to ten years) and chronic (more than ten years) states.
The booklet describing the guidelines was distributed at the end of 2008. The electronic version is in use by a unique Internet site. In this version there is a unique additional component – the patient (rather than one type of method or another) is the central axis. The therapist can insert a description of the patient in a structured format. The site provides recommendations tailored to the specific patient, taking into account prior response to treatment, and the time axis and providing comments and clarifications concerning future psychological, pharmacological, family/couples, and rehabilitation therapies. The website includes accepted evaluation measures for each of the interventions, so that the response to therapy can be quantified (by comparing the baseline scores with end of treatment scores).

[1]Corresponding author: Miki Doron, Clinical Psychologist, Israeli Consortium on PTSD, Israel, E-mail: miki@meitan.org

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Possible Involvement of Epigenetic Mechanisms in the Neurobiology of PTSD

Lt.(r) psych. Maria-Magdalena Macarenco[a]

[a]Specialist in Military and Clinical PsychologyBucharest

Seven years of military operations in Afghanistan and Iraq, thousands of soldiers were deployed, many of them wounded or killed, and yet, just a few Posttraumatic Stress Disorder (PTSD) cases.
The Romanian Department of Military Psychology has developed a psychological support program for the troops. The program starts three months prior to their deployment and ceases two months after they begin to work again in their back home units, which means almost a year of psychological presence among the soldiers, in their main military activities.

The program begins with a psychological selection so only the determined and emotional stable soldiers are chosen for the mission. Before the deployment, the Romanian troops are psychological trained for the theater specific conditions and risks by giving them information about combat stress, PTSD, acute stress disorder, different ways of intervention, and by gradually increasing the difficulty of the military exercises. The most important part of the program is the presence of the psychologist inside the deployment camp were he can immediately assist a soldier in order to decrease the tension of combat stress and stop the symptoms from becoming chronicle. The last part is the post-mission psychological evaluation where the specialists can identify the presence of PTSD, anxiety, and depression disorders.

The importance of this psychological support program will be discussed, especially the crucial impact of the psychologist inside the deployment camp where early intervention is mandatory for decreasing the chances of PTSD debut.

[1]Corresponding author: Aurelian Moraru, 348th Battalion Constanta, Phone: +4 0721 460 399, magumacarenco@yahoo.com

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

SESSION IV: TECHNOLOGY-BASED TRAINING AND TREATMENT

Use of Virtual Reality in the Continuum of Care

James Spira, PhD[a], Dr. Brenda K. Wiederhold, Dr. Dennis Wood

[a]RTI International

In 1996, the Virtual Reality Medical Center began utilizing virtual reality (VR) to augment the treatment of patients in the exposure component of a cognitive-behavioral therapy protocol in combination with biofeedback and arousal control. Initially used with civilian patients suffering from anxiety disorders, the protocol was adapted to support the treatment of those with a wide range of rehabilitation and training needs. Since 2003, VRMC has applied these methods to support U. S. military personnel deploying to and returning from combat. VR provides an opportunity to immerse an individual in a simulated environment that is contextually relevant for them. This allows for use in models of prevention and treatment of emotional, cognitive, and physical injuries. The flexibility of the protocol allows for exposure that is customized to each individual's specific needs and unique therapeutic goals. VRMC's various VR enviorments were developed to fully immerse the individual in a virtual high stress environment, allowing him/her to experience stress without being exposed to the life-threatening dangers associated with it. Patients are monitored by real-time physiological devices that allow clinicians to tailor treatment and patients to more rapidly and effectively learn skills for prevention and recovery. Results will be reported from clinical trials and real-world applications for service members in the areas of Provider Education (Combat Medic Training), Prevention (Stress Inoculation Training), Treatment of Mental Disorders (PTSD), and Treatment of Physical and Cognitive Disorders (Mixed Reality-based Rehabilitation, Pain Management). How to incorporate skill development within a VR simulation with regards to the "continuum of care" for both the range of problems facing troops as well as for assistance throughout the deployment cycle will be presented.

[1]Corresponding author: James Spira, RTI International, PhD, E-mail: jimspira@aol.com

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

PTSD Treatment by Means of the Controlled Stress Exposition Method in Virtual Reality, and a Behavioural Training

Radosław TWORUS[a], Sylwia SZYMANSKA[a], Stanisław ILNICKI[a,1]

[a]Department of Psychiatry and Combat Stress, Military Institute of the Medical Services, Warsaw, Poland

The paper presents a case of PTSD in a 30-year old soldier of the Polish Military Contingent in Iraq who has narrowly escaped death three times. The first time was when during a change of guard he was unintentionally shot by his colleague from his personal weapon. The projectile penetrated the victim's helmet, slid along its internal shell curvature and left the shell causing only a scratch on the scalp skin. This incident resulted in an acute stress reaction that vanished without any treatment. Another trauma was experienced by the soldier a month after the first incident. As a guard of honour he was "shot" in the same rear head area with a cap of a cream tube, inadvertently stepped on by a colleague. This incident caused a strong reaction to stress that could not be eliminated despite therapeutic activities undertaken by a psychologist and psychiatrist. The third event occurred a couple of days later, during a rocket attack on the Diwaniyah base. Just before the attack the soldier was heading for the laundry but he returned from the laundry building as he forgot to take some of his dirty washing. Right at that time a large-calibre projectile hit the laundry building, destroying it completely and killing an American civilian employee. After this incident the soldier was evacuated to the Department of Psychiatry and Combat Stress in Warsaw.

Multi-form post-trauma stress disorders that developed in this soldier are described. The course of his comprehensive therapy during his two hospitalizations (total duration: 8 months) are discussed. Also a detailed description of the therapy using the method of a controlled exposition to combat stressors in virtual reality (VR), supplemented with a behavioural training consisting in a desensitisation of an aversive reaction to contact with weapon at a shooting range is presented. The comprehensive treatment activities resulted in an actual full remission of the PTSD symptoms. The soldier continues his service in a logistic support unit.

[1]Corresponding author: Alja Videtic, PhD, 1Ljubljana University Psychiatric Hospital, Studenec 48, 1260 Ljubljana Polje Slovenia, Tel: 38615437661, E-mail: alja.videtic@mf.uni-lj.si

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Virtual Reality and Biofeedback to Help Warfighters deal with Stress

MAJ Melba C. Stetz, Ph.D[1]

Every year, close to 7 million of individuals in the US suffer from anxiety and depression. Similarly, many individuals fighting the current Global War on Terrorism are returning from combat with physiological problems (e.g., Traumatic Brain Injury), psychological problems (e.g., Post-Traumatic Stress Disorder), and/or behavioral problems such as sleep deprivation. Also, today's U.S. military is comprised of the most technology-driven warfighters ever seen. In fact, the Army just released the new Field Manual 7.0 "Training for Full Spectrum Operations," which incorporates both technology and gaming as highly-used and needed tools. Therefore, behavioral researchers have started to embrace gaming and Virtual Reality (VR) technologies to help warfighters' deal with their stress and resiliency needs. Thus, the purpose of this presentation is to discuss VR applications and biofeedback for assessment and treatment of our warfighters

[1]Corresponding author: MAJ Melba C. Stetz, Ph.D, Melba.Stetz@us.army.mil

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Treatment of Veterans of Polish Military Contingents with Diagnosed PTSD

Stanisław ILNICKI[a] , Andrzej RADZIKOWSKI[a], Sylwia SZYMANSKA[a], Maciej ZBYSZEWSKI[a,1], Radosław TWORUS[a], Piotr ILNICKI[a], Agnieszka LASKOWSKA1[a, b]

[a]Department of Psychiatry and Combat Stress, Military Institute of the Medical Services, Warsaw, Poland
[b]Department of Psychology, The University of Warsaw, Warsaw, Poland

Since 2003 approximately 23,000 Polish soldiers have participated in military operations in Iraq and Afghanistan. During these operations 30 (1.3/1000) soldiers were killed, 59 soldiers (2.6/1000) wounded in combat actions were evacuated back to Poland, 129 soldiers (5.7/1000) were injured without connection to combat operations, and 49 (soldiers 2.0/1000) were evacuated due to an acute stress disorder (ASD).

Basing on the number of soldiers qualified for preventive and treatment tours to rehabilitation hospitals it is estimated that PTSD syndromes of various intensity occur in 5 to 10% of the participants of the missions in Iraq and Afghanistan. Because of the fear of stigmatisation only a few of them decide to undergo a treatment in military medical establishments.

The Department of Psychiatry and Combat Stress of the Military Institute of the Medical Services is one of 4 military psychiatric departments specialised in the PTSD treatment. Since January 2, 2006, 110 veterans with this diagnosis were treated in the Department. This number included 23 (15.1%) soldiers evacuated directly from the armed conflict area while the others were treated due to a deterioration of their mental health after return to Poland. Thirty-four (30.9%) veterans had been injured in combat actions.

Prior to the treatment all the patients were examined by means of a set of the standard diagnostic questionnaires including the CAPS. The comprehensive PTSD treatment was based on both group and individual psychotherapy according to the assumptions of the cognitive and behavioural as well as dynamic therapy, and pharmacotherapy. An average PTSD treatment duration in the Clinic was 28 days.

Since 2008 also the method of a controlled exposition to war stressors using the VR technology has been included in the PTSD treatment. Out of 14 veterans who, having been fully diagnosed, were qualified for the VR therapy, 3 gave up this form of therapy after the first session and 4 veterans quitted the therapy during its

[1]Corresponding author: Maciej ZBYSZEWSKI, Department of Psychiatry and Combat Stress, Military Institute of the Medical Services, Warsaw, Poland, E-mail: maciekzbyszewski@yahoo.com

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

course. The remaining 7 veterans successfully completed the therapy. The VR approach has been found to be a valuable element supporting the classical PTSD treatment methods, especially when combined with a behavioural training.

NATO OTAN
This publication is supported by:
The NATO Science for Peace and Security Programme

An Explorative Study into an Tele-delivered Multi-Patient VR Exposure Therapy System

Christian Paping[a], Willem-Paul Brinkman[a,1], and Charles van der Mast[a]

[a]Delft University of Technology, The Netherlands

Due to participation of the Dutch army in the international consortium operating in Iraq and Afghanistan, PTSD is and remains a serious focus point. In this context, the use of virtual reality treatment is explored, especially because of the successes obtained in the treatment of other types of anxiety disorders; thereby overcoming problems associated with traditional treatments such as limited control therapists might have over the exposure, logistics, costs, and the willingness of the patient undergoing exposure treatment. VR treatment may provide substantial improvement in efficient use of therapist resources and accessibility by delivering the treatment over the internet, to multiple patients simultaneously. This motivated initial exploration into the possibilities of a multiple patients Virtual Reality Exposure Treatment (VRET). With such a setup, one therapist can monitor and treat multiple patients simultaneously, each having their own personal VR treatment at their own personal location. The approach taken was (1) a scenario-based investigation with six therapists that had extensive experience in treating patients with VRET, and (2) a controlled lab experiment with 27 (students) participants to examine the effect of an automated assistance function on the therapists' workload and performance when treating three computer-simulated patients over the internet.

In the scenario-based investigation, three short films were created that presented the envisioned system being used by a therapist illustrating specific design claims, such as the possibility of treating a patient remotely, treating multiple patients simultaneously, and the possibility of using an automated assistant function that could take over part of the VR session. At the start of the in-depth interviews, the films were shown to the therapists, after which underlying claims were discussed. The interviews revealed that almost all the therapists were in favour of the remote communication setup as proposed using a video and intercom channel to monitor the patient as well as using physiological measurement such as hart rate and galvanic skin response. Also to reduce the therapists' workload it was suggested to use pre-programmed exposure scenarios with various anxiety evoking levels. In addition, to assist the therapist in monitoring and treating multiple patients, an auto-assist function was proposed. This function could be set up by the therapists themselves for each individual patient by using simple if- and then- statements. When a session is running, the system would give a warning to the therapist if one of the if-conditions had occurred. The option would then be presented to the therapist to let the auto-assist handle the situation or to take over manually. If the therapist would not react after a set amount of time, the auto-assist

[1]Corresponding author: Willem-Paul Brinkman, Delft University of Technology, The Netherlands, E-mail: w.p.brinkman@tudelft.nl

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

would take over, applying the then-rule, for example to switch to a less anxiety provoking VR scenario if the measured anxiety level was above a pre-set value. In addition, the therapist should always have the option to press a 'call for remote assistance'–button, thereby signalling an assistant in the immediate vicinity of the patient, who will then physically go up to the patient and provide local assistance.

Based on these preliminary specifications, a prototype was constructed that was used in a controlled lab experiment to explore the effects of the proposed auto-assist function on therapists' workload and their performance, and explore the use of the 'call for remote assistance' function. In the experiment participants had to treat three computer-simulated remote patients, which they could see and hear. Varying the amount of attention needed by patients allowed for controlling the therapist workload. The experiment was set-up with a within-subject design exposing participants to four workload conditions (low, medium, high, and impossible to handle manually) when using the system with or without the auto-assist functionality. The result of the experiment showed a significant workload reduction caused by the auto-assist function. Furthermore in the high workload condition the auto-assist function also led to a significant error reduction in the execution of the treatment protocol. As the literature suggests that high workload could lead to a so called cognitive lock up situation, an important finding was that the participants did call for remote assistance when needed, and did not forget about it or were not reluctant to hand over the responsibility to another (in this case a simulated) person.

The findings of both the interviews and lab experiment are encouraging. They imply that a tele-delivered multi patient VRET system might be possible in the future, thereby providing treatment at remote locations and making efficient use of therapist resources.

Interreality in the Treatment of Post-Traumatic Stress Disorders: Rationale and Protocol

Riva G.[a], Gorini A[a]., Raspelli S.[a], Algeri D.[a], Pallavicini F.[a], Gaggioli A.[a]

[a]Applied Technology for Neuro-Psychology Lab., Istituto Auxologico Italiano, Milan, Italy

Posttraumatic stress disorder (PTSD) is a psychological illness, characterized by long-lasting problems with many aspects of emotional and social functioning, developing as a result of a terribly life-threatening (battle fatigue), or otherwise highly unsafe experience. Almost 59,000 U.S. veterans of the wars in Iraq and Afghanistan have been diagnosed with PTSD by the Department of Veterans Affairs. Army post-deployment health assessments have found that 20 percent of active-duty and 40 percent of reserve-component troops had symptoms of PTSD, and some experts say the real numbers could be much higher. The majority of these patients aren't seeking care, aren't getting enough time to recover between deployments and aren't receiving medications or therapies that are known to be effective, suggesting that research on good treatments and screening measures must improve. In Europe, the number of army soldiers being affected for PTSD has tripled in the past years, echoing a rise in such cases among the ranks of U.S. soldiers, as Europe is gradually more involved in combat operations, mostly in Afghanistan.

Up to date, psychological treatments of PTSD include eye-movement desensitization and reprocessing (EMDR), family counseling and cognitive behavioral Therapy (CBT). Specifically, CBT is used to recognize and adjust trauma-related thoughts and beliefs. This is achieved by exploring common negative thoughts, developing alternative interpretations, and by practicing new ways of looking at things. This treatment also involves practicing learned techniques in real-life situations or in virtual reality. Here we propose a new approach to PTSD treatment based on interreality, whose main novelty is an hybrid, closed-loop empowering experience bridging physical and virtual worlds. The main feature of interreality is a twofold link between the virtual and the real world: (a) behaviour in physical world influences the experience in the virtual one; (b) behaviour in the virtual world influences the experience in the real one. This is achieved through: (1) 3D Shared Virtual Worlds; (2) Bio and Activity Sensors (From the Real to the Virtual World); (3) Mobile Internet Appliances (From the Virtual to the Real One). The different technologies that are involved in the interreality vision and its clinical rationale will be addressed and discussed.

[1]Corresponding author: A. Gorini, Applied Technology for Neuro-Psychology Lab., Istituto Auxologico Italiano, Milan, Italy, E-mail: alessandra.gorini@gmail.com

This publication is supported by: The NATO Science for Peace and Security Programme

SESSION V: PTSD & COMORBIDITY

The Emergence of Total Fitness within the United States Department of Defense

Todd M. Yosick MSW, BCD, MAJ, MS[a,1]

[a]Major, Medical Service Corps, United States Army
Chief, Operational Resilience Division
Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury
Office Of The United States Assistant Secretary Of Defense For Health Affairs

In protracted, asymmetric warfare, service members are under increasing pressures on a physical, psychological, emotional, and spiritual level that lead to breakdowns in the human system, undermining mission success, and force readiness. The U.S. Department of Defense is shifting to promoting a comprehensive model that optimizes physical and cognitive capacities to meet operational demands. The concept of "total fitness" provides the necessary framework to achieve a resilient military force ready and able to meet the demands of the 21st century.

The Operational Resilience Division of the United States Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) was developed to enhance resilience, maximize recovery, and promote reintegration of affected service members by adopting an integrated and holistic model, "total fitness", for members and veterans of the United States Armed Forces. "Total fitness" is a concept that integrates and optimizes the physical, psychological, social, and spiritual components of the human dimension so service members are prepared to thrive in any operational situation. The successful emergence of this concept to optimize force readiness serves as the primary strategic mission of the Operational Resilience division, generally defined by the following four goals: facilitate a cultural shift towards a proactive model of well-being; increase ongoing multi-agency and multi-disciplinary collaboration; identify and disseminate best practices, innovative programs, and practical tools; and, increase the provision of needs assessments and consultation services for strengthening and resilience-based programs throughout the globe.

[1]Corresponding author: Todd M Yosick MSW, BCD, MAJ, MS, Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, United States, E-mail: Todd.Yosick@tma.osd.mil

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Action of War-PTSD in Families as Bio-Psycho-Social Systems

Dietmar Golth, MD, PhD[a,1]

[a]Peacekeeping and stress-management, Abfalterhofweg 2, Salzburg, Austria

After Achill had lost his friend Patrokles during the siege of Troja he got furious. His mental state was described in Homer´s Illias as "Berserkertum". Nowadays we would interprete his symptoms as hyperarousal belonging to one of the most dangerous wounds of war, PTSD (posttraumatic stress disease).

This symptom, as well as numbing, flashbacks, avoidance, sleep disturbancies, loss of social abilities etc interfere with the family systems of soldiers and veterans after deployment. If they persist traces of psychic traumatisation can be traced over generations as has been documented in children and grandchildren of the survivors of the Holocaust.

Focusing on the diade investigations of Israelian, Croatian, Kuweitian, Dutch and US soldiers with PTSD have shown there is also a risk for the husbands and children to be "infected" by the PTSD symptoms. Up to about 25% to 60% of the wifes may develop PTSD themselves which can produce "trauma-families" and alter the environment for their children by dysfunctional parenting patterns. Boys of Persian veterans showed more aggression or extrinsic symptoms, girls may imitate internalizing symptoms. Family stress may also be increased by daily hassels and produce bio-psycho-social-symptoms in all family members including family burnout as a final development. And children also can develop secondary traumatisation, although PTSD is not the most frequent reaction after childhood trauma.

Figley, a Vietnam veteran himself, and Williams therefore started to treat the families of soldiers and focused on the spread effect. Today the gold standard in the support of traumatized soldiers with ongoing "Combat Stress Injuries" should be a combination of therapy for the index-patient and his social context including somatic diseases which may start earlier in PTSD subjects.

Future research has to focus on the prevention of the transfer of combat stress symptoms in the "home-front" including the military, families, schools, business etc. First results show that strong social systems can puffer stress and help to reduce PTSD symptoms. Children especially can profit from a warm and sensitive mother giving room for the development of a secure attachment which may be so powerful that it overrules father's symptoms. If the mother is stressed herself which is possible for example after duty in Irak or Afghanistan it may take months to redevelop strong bonds and a secure living atmosphere.

[1]Corresponding author: Dietmar Golth, MD, PhD, Peacekeeping and stress-management, Abfalterhofweg 2, Salzburg, Austria, E-mail: golthadietmar@aon.at

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Mental Health and Substance Use Wounds of War: Findings from U.S. Department of Defense Health Related Behavior Surveys

Robert M. Bray, PhD[a,1]

[a]RTI International

The wars in Iraq and Afghanistan are producing a new generation of veterans who are at risk of developing serious mental health problems including posttraumatic stress disorder (PTSD) and related substance use disorders. Military and governmental officials, researchers, and health care providers are working to address the surge in psychological and operational stress injuries observed among these returning troops. The screening for mental health and substance use problems and identification of changes in the numbers and groups at risk for such problems are a major concern. Planning for the optimal delivery of appropriate services is contingent on the quality of data from epidemiological studies designed to estimate the extent of these problems.

Drawing on data from the U.S. DoD Surveys of Health Related Behaviors (HRB) Among Active Duty Military Personnel, this presentation will examine prevalence, trends, and correlates associated with mental health, substance use, and deployment issues. The DoD HRB surveys are large comprehensive population-based studies (samples from 12,000 to 25,000 active duty members) spanning a 28- year period from 1980 to 2008.

More specifically, the presentation will examine (a) trends for a variety of mental health indicators including PTSD, major depression, generalized anxiety disorder, serious psychological distress, suicidal ideation and attempts, and perceived work and family stress, (b) trends and correlates of binge drinking, heavy alcohol use, tobacco use, and illicit drug use, and (c) the relationship of deployment and combat exposure on mental health substance use.

[1]Corresponding author: RTI International, Robert M. Bray, PhD, Tel: +1 919-541-6433E-mail: rmb@rti.org

NATO OTAN
This publication is supported by: The NATO Science for Peace and Security Programme

Symptom Prevalence of PTSD, Anxiety, Depression, Level of Exposure & Mediating Factors on a population from Southern Lebanon

Laila F. Farhood[a], Hani Dimassi[b]

[a]Ph.D, C.S, R.N, Professor , AUB School of Nursing, Beirut, Lebanon
[b]M.P.H, Ph.D, Assistant Professor , AUB School of Nursing, Beirut, Lebanon

Several areas in the south of Lebanon were under occupation until the year 2000. Events associated with the occupation have affected the psychological and physical health of the population. The purpose of the present study was to investigate the prevalence of Posttraumatic Stress Disorder (PTSD), general psychiatric morbidity and depression among residents in the formerly occupied region. Predictors for PTSD, as well as general psychiatric morbidity were also addressed in the study.

The study population consisted of randomly selected participants from six towns in the South of Lebanon. Traumatic events and symptoms of PTSD were measured by the Harvard Trauma Questionnaire. General psychiatric morbidity was assessed by the General Health Questionnaire (GHQ-28), and depression by the Beck Depression Inventory. Results show that the majority of the population in all towns has experienced several war related traumatic event. PTSD prevalence ranged from 17.6% to 33.6%. 14% met criteria for depression (range 9.2% to 19.7%) and 50% for general psychiatric morbidity with 35% co-morbidity between PTSD and depression. Females were 6 times more likely to have PTSD than males, smokers & those with low social support twice as much. Levels of PTSD varied, but were consistently higher, even five years after the end of the occupation, than found in studies conducted in countries not suffering from armed conflict. The extent of exposure to traumatic events was a positive predictor for both PTSD (4 times) as well as general psychiatric morbidity. Predictors of depression were: social support (4 times), financial problems (3 times), trauma score (7 times) & those with alcohol consumption (50% higher than in non-consumers). The study proposes intervention strategies to minimize the damage caused by traumatic events & help traumatized victims regain functionality. Moreover, the author will also present results of preliminary data from the same areas pre and post July 2006 war. It is believed that this is the first study of its kind to report on impact of war before and after exposure to a traumatic war.

[1]Corresponding author: Laila F. Farhood, AUB School of Nursing, Beirut, Lebanon, lf00@aub.edu.lb

This publication is supported by: The NATO Science for Peace and Security Programme

Correlation of Suicidal Thoughts with PTSD, Emotional Distress and Depression in Population of Kosovo Six Years After the War

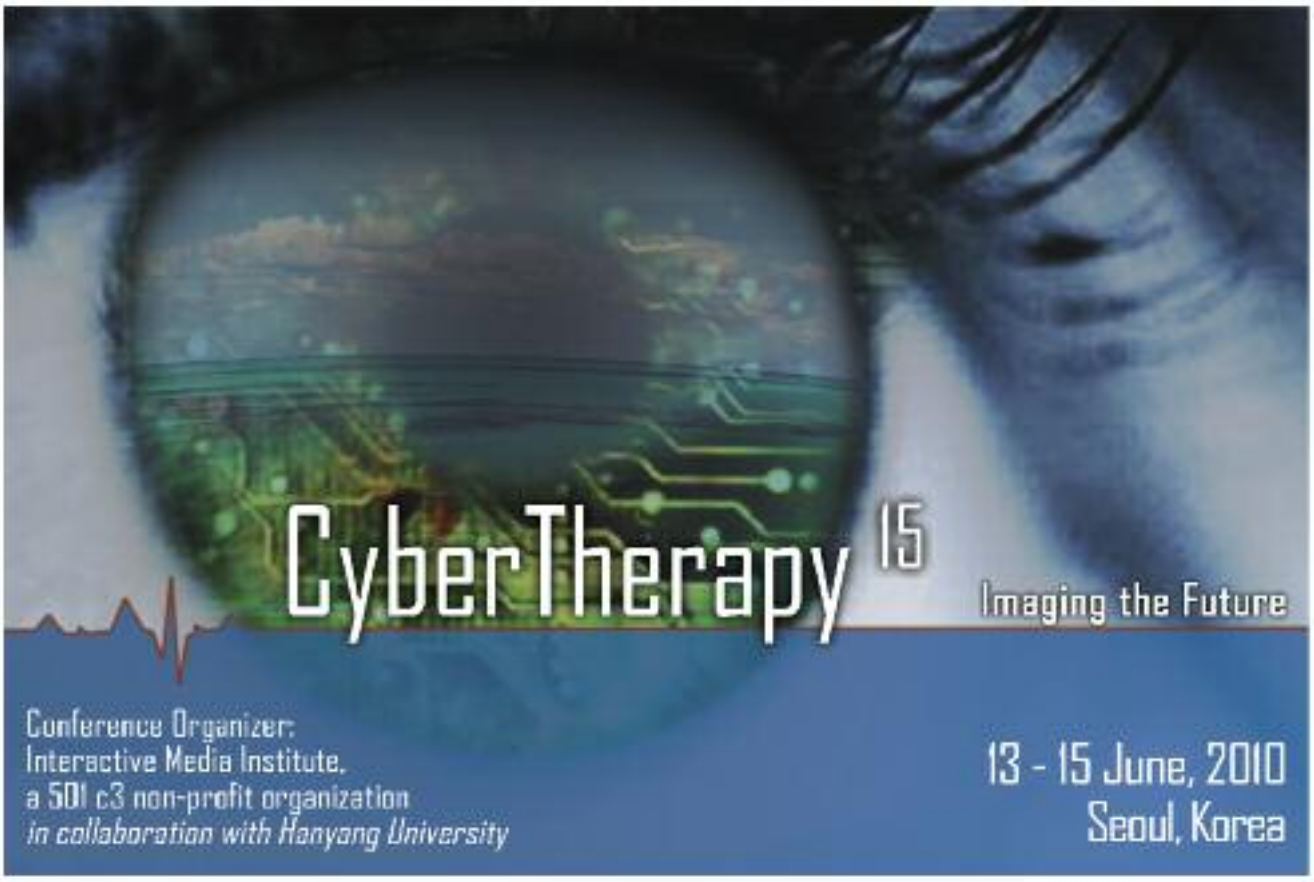
Professor Dr. Ferid Agani[a,1]

[a]University of Prishtina, Kosovo, Albania

Mental health surveys realized in 1999 and 2000, has indicated high prevalence of war-trauma related substantial psychiatric morbidity among Kosovan Albanians 15 years and older. Recovery from psychological trauma in post-war Kosovo, hindered by the severe economic situation, rapid cultural transition, disintegration of social support networks; and the unknown fate of thousands of missing persons, is very slow. Growing suicidal index, from 1.62 in 1962 to 4.2 in 2006 is indicator of serious psychosocial difficulties that Kosovo population is facing. Aiming to determine mental health status of the Kosovo population six years after the war, follow up study has been conducted. Similar with 1999 and 2000 studies; 2005 study was designed as two-stage cross – sectional cluster sample survey of1161 citizens of Kosovo 15 years and older, across the territory of Kosovo. 83.9% of the sample was represented with Albanians, 6.7% Serbs and 9.4% other ethnical communities. Study has revealed high prevalence of signs and symptoms of Post Traumatic Stress Disorder (22.6%), depression (43.1%) and emotional distress (43.9%); as well as high preoccupation with suicidal thoughts in the representative sample of the Kosovo population 15 years and older. Results are correlated with the presence of suicidal thoughts and are analyzed based on demographic characteristics, exposure to trauma experiences, displacement, and health characteristics. Six years after the war, substantial psychiatric morbidity still remains important health problem that influence rising number of suicides and suicide attempts in Kosovo. Vulnerable groups are represented with rural population, youth, divorced, region of the town of Gjakova, those with a killed family member or a friend, and those who had experienced multiple traumatic experiences during the war. Preoccupation with suicidal thoughts was significantly higher in persons with signs and symptoms of post traumatic stress disorder, depression and emotional distress, and is causally linked with the number and quality of traumatic events.

[1]Corresponding author: Ferid Agani, University of Prishtina, Kosovo, Albania, E-mail: ferid.agani@gmail.com

This publication is supported by: The NATO Science for Peace and Security Programme



CyberTherapy 15

Imaging the Future

Pre-conference Workshops: 13 June 2010
Conference 14-15 June 2010
Seoul, Korea

The focus of this conference is on the increasing use of interactive media in training, education, rehabilitation, and therapeutic interventions. Technologies include virtual reality simulations, videogames, telehealth, video-conferencing, the internet, robotics, brain computer interfaces, wearable computing, non-invasive physiological monitoring devices, and imaging devices.

2010 CALL FOR PAPERS

SUBMISSION/REGISTRATION DEADLINES:

January 15th, 2010:	Oral, Poster, and Symposia abstracts due.
February 15th, 2010:	Authors are informed if their submission has been accepted.
March 15th, 2010:	Submission deadline for full papers.
May 15th, 2010:	Deadline for early registration (see website for details).
June 1st, 2010:	Deadline for online registration.

For questions or to submit your abstract:
www.interactivemediainstitute.com
or cybertherapy@vrphobia.com
1-866-822-8762 (Toll-free)

Conference Organizer:
Interactive Media Institute
a 501c3 non-profit organization
in collaboration with ***Hanyang University***

Brenda K. Wiederhold, Ph.D., MBA, BCIA
Conference Co-Chair

Sun Kim, Ph.D.
Conference Co-Chair

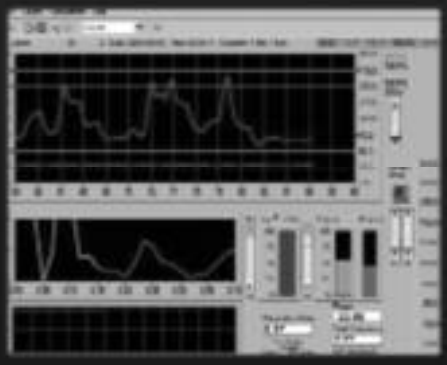
Approved CE Credit Provider

Interactive Media Institute, a 501c3 non-profit,

is approved by the American Psychological Association to offer continuing education courses. We are pleased to announce the following course offerings:

Virtual Reality and Anxiety Disorders (including phobias and panic disorder)
Virtual Reality and Posttraumatic Stress Disorder
Virtual Reality and Pain Management

We are also pleased to offer VR therapy training classes for therapists interested in learning to incorporate VR into their existing practices.



6155 Cornerstone Court East, Suite 210
San Diego, CA 92121
Phone: (858) 642-0267
Email: frontoffice@vrphobia.com
www.interactivemediainstitute.com

NATO OTAN

This publication is supported by the NATO Science for Peace and Security Programme