

# War Syndromes and Their Evaluation

*From the U.S. Civil War to the Present*

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# Background of Initial Investigation

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- In 1993 questions were raised about whether there had been prior illnesses like the postulated Gulf War syndrome
- Historical study was begun using secondary source data -- usually accounts by doctors who had participated in a war
- Investigation started with U.S. Civil War because comparative medical data was available

# U.S. Civil War – two novel syndromes

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## *Irritable Heart/ Da Costa's syndrome*

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Postulated cardiac condition  
evaluated among 300 patients in  
a specialized referral center

**Symptoms:** Shortness of Breath  
Palpitations  
Chest pain  
Headache  
Diarrhea  
Dizziness  
Disturbed sleep

**Signs:** None confirmed

**Causes:** Strenuous duties  
Infectious Diseases  
Idiopathic

**Treatment:** Various drugs, including  
digitalis

## *Nostalgia*

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Illness observed most often among  
the youngest soldiers who frequently  
had no combat experience

**Symptoms:** Obsessive thoughts of  
home  
Apathy  
Loss of appetite  
Diarrhea  
Occasionally fever

**Signs:** None

**Cause:** Primarily psychological

**Treatment:** Home leave

# World War I

## *Da Costa's or Effort Syndrome/Soldier's heart*

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Postulated physiological disease; affected large numbers of troops

**Symptoms:** Shortness of Breath  
Palpitations  
Chest pain  
Headache  
Diarrhea  
Fatigue  
Dizziness  
Difficulty concentrating  
Forgetfulness  
Disturbed sleep

**Signs:** None confirmed

**Causes:** Multiple

**Treatment:** Supportive  
Avoidance of labels

## *Shell Shock* (acute combat stress reaction)

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Considered psychological illness after initial evaluation of victims

**Symptoms:** Dramatic paralysis/blindness  
Dazed or detached manner  
Heightened startle response  
Headache  
Diarrhea  
Fatigue  
Palpitations/chest pain  
Difficulty concentrating  
Forgetfulness  
Disturbed sleep

**Signs:** None

**Cause:** Stress

**Treatment:** Supportive  
Avoid diagnostic labels

# WW I: Effort Syndrome

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- **Third leading cause of disability determination**
  - Massive governmental response
    - Three specialized clinical centers established in the UK and USA
    - Treatment mainly supportive: exercise and encouragement
  - Research -- coordinated by MRC in the UK
  - Compensation provided for disability
- **Mail Survey 5 years after war**
  - Unique disease not identified and no increase in mortality
- **Unanswered questions after the war**
  - Consistent name for illness
  - Case definition
  - Cause(s): exhaustion, pre-existing condition, infectious disease, stress, CW
  - Physiological vs psychological illness

# World War II/Korea

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## *Effort syndrome*

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Evaluated in case series  
at start of the war

*Symptoms:* as in WWI,  
somatic symptoms

Fatigue  
Shortness of breath  
Palpitations  
Headache  
Diarrhea  
Disturbed sleep  
Forgetfulness  
Difficulty concentrating

*Signs:* None found

*Causes:* Psychological

*Treatment:* Supportive

## *Battle fatigue/combat exhaustion (acute combat stress reaction)*

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An accepted psychological illness

*Symptoms:* Less dramatic symptomatology  
Most often somatic symptoms

Fatigue  
Shortness of breath  
Palpitations  
Headache  
Diarrhea  
Disturbed sleep  
Forgetfulness  
Difficulty concentrating

*Signs:* None

*Cause:* Stress

*Treatment:* Supportive  
Avoid diagnostic labels

# Vietnam War – two novel health problems

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## *Agent Orange Exposure* (“In-country Effect”)

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Physical diseases associated with exposure to dioxin  
Somatic symptoms common

*Symptoms:* Somatic common  
Fatigue  
Headache  
Muscle and joint pain  
Diarrhea  
Disturbed sleep  
Forgetfulness  
Difficulty concentrating

## *Post-Vietnam Syndrome* (Post traumatic stress disorder)

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PTSD -- Long-term psychological morbidity associated with intrusive thoughts, avoidance/numbing, and increased arousal

*Symptoms:* Somatic symptoms common  
Fatigue  
Shortness of breath  
Palpitations  
Chest pain  
Headache  
Muscle and joint pain  
Disturbed sleep  
Forgetfulness  
Difficulty concentrating

# Gulf War

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## *Gulf War syndrome*

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Postulated physiological disease

**Symptoms:** Fatigue  
Headache  
Muscle/joint pain  
Diarrhea  
Shortness of breath  
Chest pain  
Sleep disturbance  
Difficulty concentrating  
Forgetfulness

**Signs:** Area of research

**Causes:** Multiple suspected

**Treatment:** Supportive

## *Adjustment reaction/PTSD*

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Symptoms of PTSD reported by  
1-15% of surveyed Gulf veterans

**Symptoms:** Fatigue  
Headache  
Muscle/joint pain  
Sleep disturbance  
Difficulty concentrating  
Forgetfulness

**Signs:** None

**Cause:** Stress

**Treatment:** Supportive

# War Syndromes

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## Two Major Categories

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<i>Conflict</i>	<i>Postulated Physiologic Disease</i>	<i>Psychological Illnesses</i>
U.S. Civil War	DaCosta's syndrome	Nostalgia
World War I	Soldier's Heart	Shell Shock
World War II	Effort syndrome	Battle fatigue
Korea	--	Battle fatigue
Vietnam	"In-country effect"	PTSD
Gulf war	Gulf War syndrome	PTSD

# Impressions from historical record of war-related health problems

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- **Diverse injuries & diseases reported**
- **Varied psychiatric illnesses**
  - Pre-existing conditions
  - Acute combat stress reaction
  - Adjustment reaction/PTSD
- **Multiple somatic symptoms common**

*As expected in any large, adult population subjected to complex environmental exposures and psychological stress, a wide diversity of health problems developed during and after wars.*

# Similarities in War Syndromes

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- **Unique populations were singled out for intense scrutiny after an exceptional traumatic experience**
  - Retrospective studies with inadequate exposure data
  - Recall bias
  - Lack of adequate control populations
- **Two categories of illnesses identified**
  - Postulated physiological disease
  - Psychological illness

# Similarities in War Syndromes

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- **Clinical findings**

- No characteristic sign or lab abnormality
- Shared symptoms:

Fatigue

Sleep disturbances

Shortness of breath

Forgetfulness

Headache

Difficulty concentrating

- **Lack of unique pathophysiology limited**

- Development of specific case-definitions
- Assessment of biologic plausibility of postulated causes
- Evaluation of associations with health risks & exposures

# Similarities in War Syndromes

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- **Long history of government concern for veterans with unexplained symptoms in the U.S., Canada, Australia, and the U.K.**
  - Specialized health care centers
  - Concerted research program
  - Compensation

# Differences in Recent War Syndromes

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- **Involvement of family members**
  - Reports of sick family members following contact with clothes & equipment after the Vietnam war and the Gulf war
  - Similar psychological problems among family members of Israeli soldiers
- **Enumeration and complex statistical analysis of subjective symptoms following the Gulf War of 1991**

# Second Study

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- **A follow-up study was conducted using British military health records and war pension files dating to the Boer war (Jones, et al. BMJ 2002;324:321)**
- **This study of symptom clusters among 1856 veterans again found that all modern wars are associated with somatic syndromes**
- **The terms and explanations used to characterize these war syndromes were influenced by:**
  - Advances in medical science
  - Changes in the nature of warfare
  - Underlying cultural forces

# Quotes from Investigators

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*“We are unable to assign a definite pathological basis to the majority of cases. There is no single underlying cause to account for the occurrence of ... soldier’s heart.”* Clinical Evaluation of 5000 WWI Soldiers.  
W.E. Hume. Lancet 1918:i:529

*“It is the apparent diversity of cause which makes the syndrome so extraordinarily difficult to investigate.”*  
The Soldier’s Heart and the Effort Syndrome.  
Thomas Lewis, 1919

# Quotes from Investigators

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*“The group is well defined, and in our view the symptomatology suggests, not primary cardiac mischief, but disturbances of function resulting from toxic absorption or actual infection. We have systematically examined eleven patients from the this point of view, and in ten of them have found the streptococci (in two cases, staphylococci) are present in urine... We take the view that we are dealing with an infection of the blood with organisms of a low grade of virulence and that these are filtered out in the urine, for the urine contains no pus cells, and, in a number of patients, the organism has been recovered from the blood itself.”*

A note on the “Irritable Heart” of Soldiers. Thomas Cotton, Thomas Lewis, F.H. Thiele. BMJ 1915;1:722

# Quotes from Investigators

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*“The faulty examination of recruits in the last war is clearly illustrated by [the fact] that nearly half the patients invalided for ‘effort syndrome’... developed their symptoms before joining the forces...”*

The Soldier’s Heart and the Effort syndrome. Thomas Lewis, 1940.

# Conclusions

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- Poorly understood war syndromes have been associated with armed conflict since at least the U.S. Civil War.
- Similar process by which these syndromes were medically evaluated and officially defined.
- War syndromes involve fundamental questions about health and illness.