



# Treat Dehydration Casualties

Marine with Echo Company, 2nd Battalion, 3rd Marine Regiment, rests and hydrates during a jungle training event at the Kahuku Training Area, Hawaii. 2019



# OVERVIEW

- Predisposing Factors
- Signs and Symptoms
- Treatment
- Preventive Measures
- Hyponatremia





# LEARNING OBJECTIVES

Please read your  
Terminal Learning Objectives  
and  
Enabling Learning Objectives





# INTRODUCTION

## WATER

- 45 -70% of body weight
- Used to carry out normal functions
  - Respiration
  - Elimination of waste
  - Lubrication
  - Regulate body temp





# INTRODUCTION

- Too much or too little water can alter the stable, relatively constant internal environment of the body known as homeostasis
- Vital organs cannot function properly without the correct amount of water and electrolytes







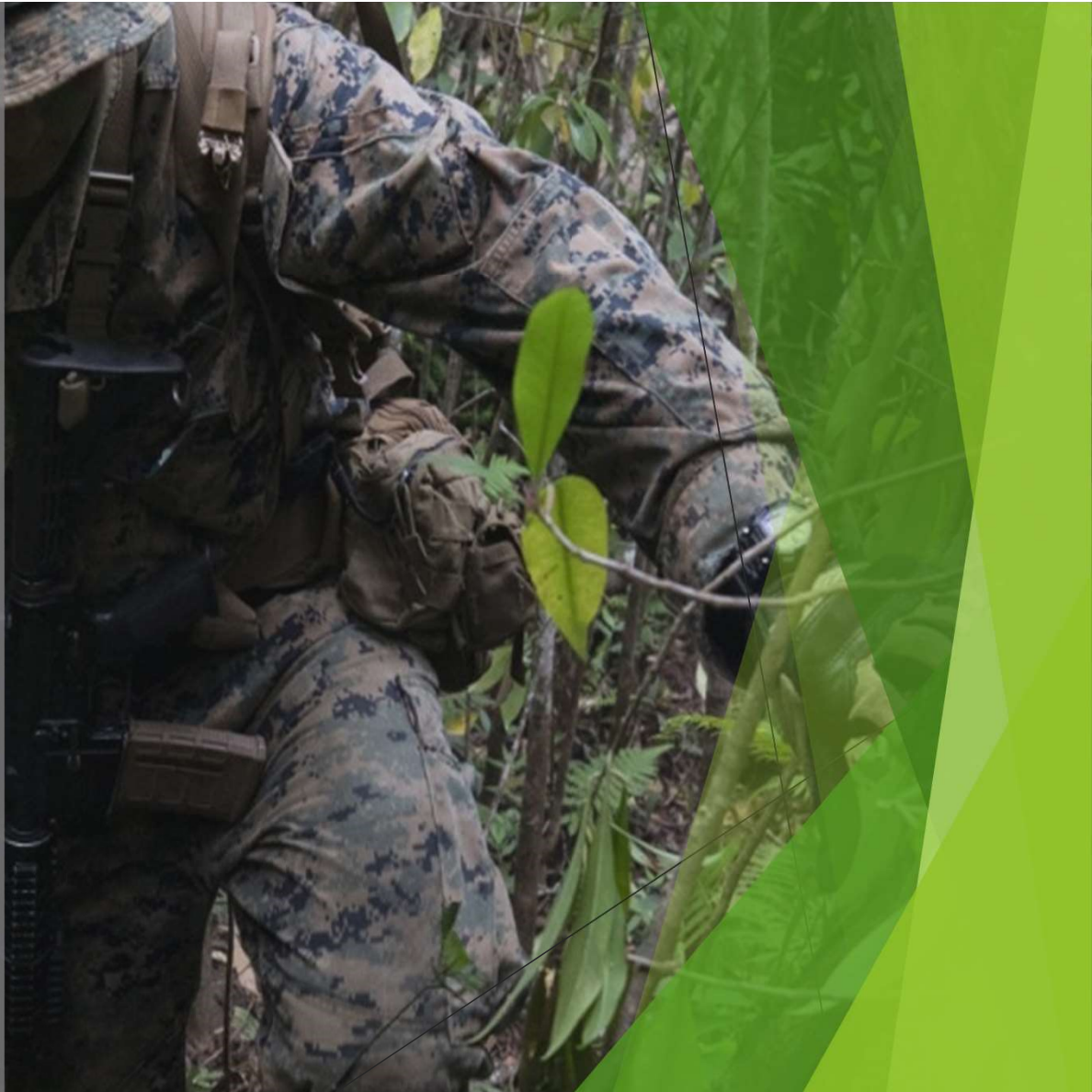


# PREDISPOSING FACTORS OF DEHYDRATION



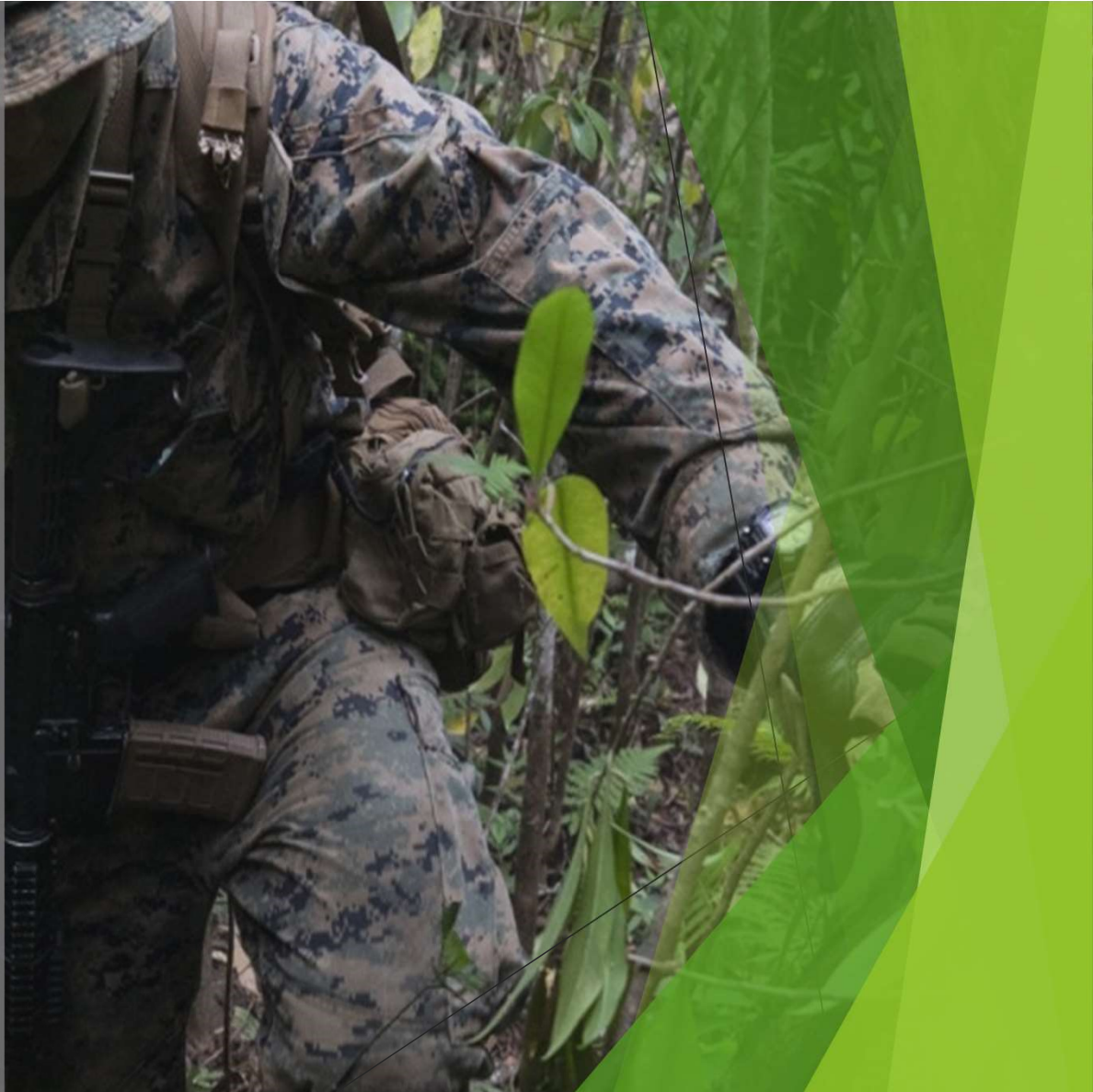
# PREDISPOSING FACTORS

- Alcohol consumption
- Medications
- High BMI / Low Fitness Level
- Inadequate diet
- Improper clothing

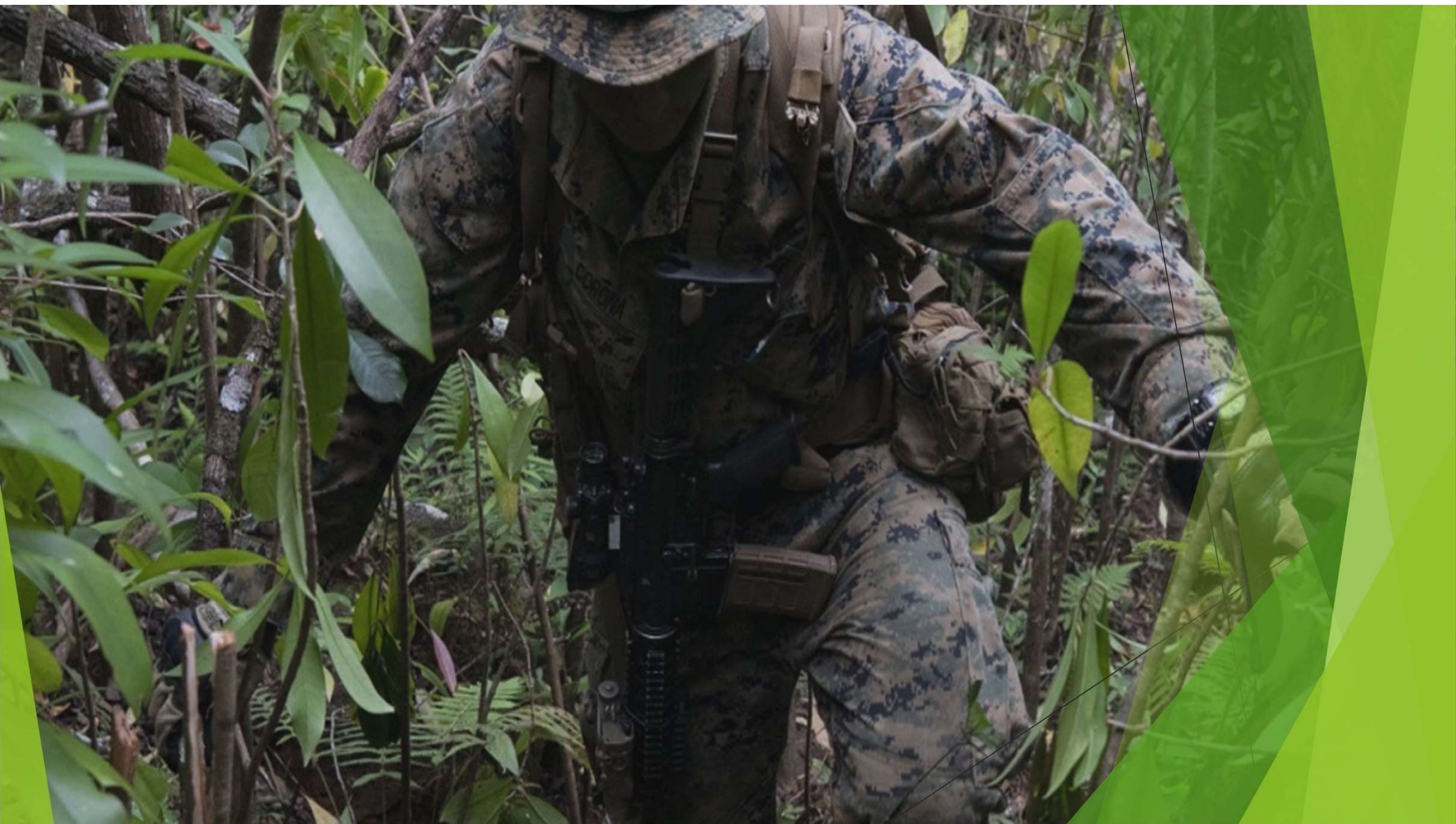


# PREDISPOSING FACTORS

- Medical conditions
- Age
- Fatigue / lack of sleep
- Improper acclimatization











# SIGNS AND SYMPTOMS





# SIGNS AND SYMPTOMS

- Fatigue
- Headache
- Decreased heat tolerance
- Cognitive deterioration
- Reduction in strength and physical capacity



# SIGNS AND SYMPTOMS

- ▶ Less frequent urination/dark color urine
- ▶ Thirst
- ▶ Lightheadedness
- ▶ Dry skin
- ▶ Dizziness
- ▶ Confusion
- ▶ Dry mouth and mucous membranes
- ▶ Increased heart rate and breathing
- ▶ Decreased turgor



Skin with decreased turgor  
remains elevated after  
being pulled up and  
released

## SKIN TURGOR







# TREATMENT



# TREATMENT

- Identify and treat the cause
- Assess the level of dehydration based on the signs and symptoms
- Re-hydrate:
  - Mild: Oral hydration (If able to tolerate)
  - Moderate and Severe: IV Fluid Replacement
- Do not over hydrate









# PREVENTIVE MEASURES



# PREVENTIVE MEASURES

- Before activities
  - Drink extra fluids to produce straw colored urine
- During activities
  - Several fluid breaks per hour
  - 1 quart per hour

1

2

3

4

5

6

7

8

# PREVENTIVE MEASURES

- Maintain a balanced diet

- MRE's are formulated to provide important electrolytes and other nutrients





# PREVENTIVE MEASURES

- Avoid diuretic beverages
  - Minimize consumption of alcohol, coffee, tea and caffeinated beverages
- Educate troops
  - Key to prevention
  - Eliminate myths











# HYPONATREMIA





# HYPONATREMIA

- Hyponatremia is due to a low sodium level in the blood and can occur when:
  - Sodium and water is lost from sweat
  - Excessive water intake = over dilution of sodium in the blood
- Disturbs the osmotic balance and can cause a rapid influx of water into the brain



# HYPONATREMIA

## Signs / Symptoms

- ▶ Headache
- ▶ Malaise
- ▶ Nausea
- ▶ Confusion/Mental status changes
- Seizures
- Coma
- Permanent brain damage
- Death



# HYPONATREMIA

## Risk Factors

- ▶ Exercise duration of greater than 4 hours
- ▶ Low body weight
- ▶ Over-hydration
- ▶ NSAID use
- ▶ Extreme hot or cold environments



The background of the slide features a photograph of a person in a forest, wearing a hat and a backpack, walking on a rocky path. The image is partially obscured by a semi-transparent grey box containing text and a green geometric overlay on the right side.

# HYPONATREMIA

## Treatment

- Recognize the disorder and determine severity
- Mild symptoms
  - Observe for normal diuresis
- Symptomatic
  - Place in an upright position
  - TACEVAC



# HYPONATREMIA

## Prevention

- Education
- Do not restrict sodium intake
- Do not rely solely on water









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