

The Role of Nutrition in Health & Human Performance: A Healthcare Leader's Perspective

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Army Lt. Col. Tanisha L. Currie is originally from Chicago, III. She attended the University of Oklahoma of the Health Sciences for her Bachelor of Science in Nursing. Shortly after graduating college in 2003, she worked as a clinical staff nurse and leader at the Mayo Clinic in Rochester, Mnn. In 2008, Lt. Col. Currie accepted a direct commission into the Army Nurse Corps and was assigned to Joint Base Lewis McChord, Wash.

Lt. Col. Currie completed her MA degree in Management and Leadership from Webster University in 2016; and obtained a certificate in Healthcare Project Management from the American University in 2021. She has applied her leadership knowledge and experiences to several hospital organizations within clinical, academic, and combat operational settings. Lt. Col. Currie graduated from the Uniformed Services University of the Health Sciences in Bethesda, Md. with a Ph.D. in Nursing Science in May 2022; her research concentration is in Nutrition and Brain Health. She has published three peer-reviewed journal articles in Health and Human Experience, Molecules, and her most recent publication in February 2023, within the Nutrients Journal titled "Considerations for Optimizing Warfighter Psychological Health with a Research-Based Flavonoid Approach: A Review." Given Lt. Col. Currie's background and research interests she seeks to inspire organizations through principles of nutrition, brain health, leadership, and optimal work performance.





Disclosures

- Lt. Col. Tanisha L. Currie has no relevant financial or non-financial relationships to disclose relating to the content of this activity.
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The authors have no financial interests or relationships to disclose.





Learning Objectives

At the conclusion of this activity, participants will be able to:

- 1. Summarize Recruitment and Retention Landscape.
- 2. Discuss the challenges of Healthcare Provider Resiliency.
- 3. Identify Department of Defense (DoD) Health Optimization Initiatives for performance and readiness {(i.e., Holistic Health and Fitness(H2F)}.
- 4. Distinguish bioactive components of foods and their relationship to health.
- 5. Explain Leader Inspired Nutrition (LIN) and Engagement Principles.





Readiness: Recruitment and Retention

- According to Army Recruiting Command, "71% of youth do not qualify for military service because of <u>obesity</u>, drugs, physical and mental health problems, misconduct, and aptitude."
- On average only 23% of Americans ages 17-24 fully qualified to serve.
- DoD reports, only the Marines, Air Force, and the Space Force met their target Fiscal Year (FY) 22 recruiting goals. Army and Navy had the greatest deficit for FY 22. However, it is projected that all services are at risk for not meeting FY23-24 recruiting goals.
- FY 22 it was reported that all services retained strong retention.
- <u>BLUF</u>: if we do not get our recruiting numbers up, we will most certainly feel the void on the retention end.





Retention: Health of the Force

According to the 2021 Health of Force report:

- ❖ 18% of Service Members (SMs) are obese
 - ✓ lack of access to nutrient dense foods, limited food options on post, "quick brown bag meals," transportation barriers
 - ✓ lack of physical fitness
 - ✓ lack of nutrition education
- \$ 15% diagnosed with one or more behavioral health issue
 - Increase in literature on the relationship between food, mood, and cognitive performance-food can play an important role
- Rand Report, 2018: 25.8% of Service Members were found to be food insecure

 Triggers: lack of financial readiness planning, Supplemental Nutrition Assistance Program (SNAP) program stipulations, daily family challenges

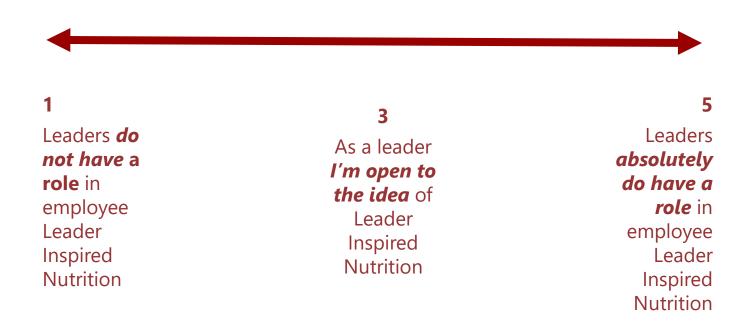
Take Home Points:

- More needs to be done to leverage a lethal advantage through nutrition and warfighter performance.
- Leaders will need to engage and invest more in their people (i.e., Understanding today's Warfighter, their battles outside of the uniform, and society's influence on the food environment and consumption) will be key to optimizing the mission.



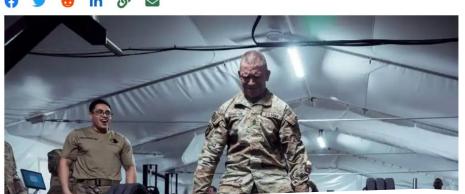


Leadership and Nutrition Responsibility Belief?



Top enlisted soldier calls out leaders to 'show up' at PT

By Todd South Thursday, Apr 2







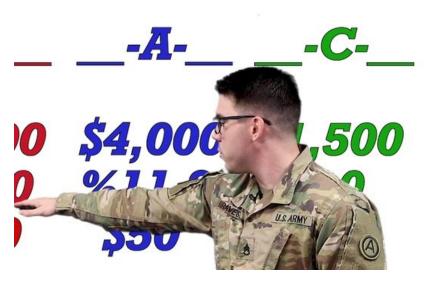
- Leader Role Modeling (i.e., Sgt. Maj. of the Army Michael A. Grinston)
- Potentially increasing objective human performance tracking capabilities
- Leaders are having to engage in more spheres of influence than in the past
- <u>Nutrition</u> may be another role that leaders can influence through role modeling, resources, and understanding its effects on the mission

(armytimes.com, n.d.)





Your Army



(googleimages.com, n.d.)

If Health and Human Performance were measured in financial currency, would you be thriving, maintaining, or bankrupt?

-Dr. Tanisha Currie







"As we transition towards recovery, we have a moral obligation to address the long-standing crisis of burnout, exhaustion, and moral distress across the health community. We owe health workers far more than our gratitude. We owe them an urgent debt of action."

-Vivek H. Murthy, M.D., M.B.A. Vice Admiral, U.S. Public Health Service Surgeon General of the United States

(Adobe Stock Photo, n.d.)





The Big Picture: Healthcare Provider Resiliency

- Healthcare Worker Burnout ■ Depression **Suicide** rates {Centers for Disease Control and Prevention (CDC), U.S. reports 48,183} **■** Unpredictable environments ■ Occupational hazards/risks Lack of family considerations
- More pressure placed on the individual healthcare worker vs the system at large
- Lack of selfcare: poor diet, exercise, coping, and

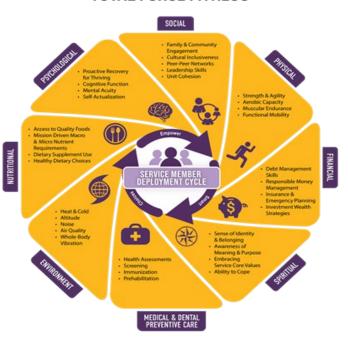


(https://phlebotomycareertraining.com/, n.d.)



Total Force Fitness: A Framework

TOTAL FORCE FITNESS



(CHAMP, n. d.)





Proposed Solution to Warfighter Health



(https://www.usar.army.mil/, n.d.)





Holistic Health and Fitness (H2F)

- Holistic Health and Fitness (H2F)
- FM 7-22 (H2F) was created as an enterprise-wide system encompassing physical and non-physical elements of optimized human performance
- Interest in overall wellness, injury prevention, and faster soldier recovery
- H2F is a lifestyle
- Applies to Active duty (AD), United States Army Reserve (USAR), and Department of Army (DA) Civilians



(https://www.usar.army.mil/, n.d.)





Research Study: Effect of the Personnel Element of the Army's Holistic Health and Fitness System on Health-Related Behaviors and Injury (Jayne et al., 2022)

Examine the effects of a team of embedded health and performance experts within the H2F system on health-related behaviors and readiness outcomes among a combat unit with H2F assets compared to one without.

- 1. Are there differences in resilience, sleep, activity, and nutrition behaviors among Soldiers in H2F units compared to Soldiers in units that do not have H2F embedded providers?
- 2. Will embedding providers in operational units improve resilience, sleep, activity, and nutrition behaviors among Soldiers in H2F units?
- 3. Will embedding providers in operational units improve rates of musculoskeletal injury, body composition flags, chapters for failure to meet body composition or physical fitness standards, and physical fitness failure among Soldiers in H2F units?







(Army.mil, n.d.)





H2F Personnel



Physical Therapists x 3



Registered Dietitians x 2



Occupational Therapists x 2



Athletic Trainers x 7



Strength and Conditioning Specialists x 14

(Jayne et al., 2022)





Analysis Results – Continuous Variables

		_	Mean at each iteration						Location or location by
Domain	Outcome	Location	1	2	3	4	Average	Trend Line	Iteration effect
Physical	Physical activity, min/day	H2F Site	89.0	93.7	80.0	87.4	87.2	-	F (3,496)=2.92,p=0.03
		Non-H2F Site	91.9	88.0	82.0	77.9	86.9		F (3,496)-2.92,p-0.03
	Army Combat Fitness Test	H2F Site	490.3	481.1	478.4	490.1	483.9		F (3.170)=0.39 n=0.94
	Score	Non-H2F Site	496.3	487.4	496.7	494.2	496.4		F (3,170)=0.28,p=0.84
Nutritional	Healthy Eating Score-5	H2F Site	11.3	12.0	11.3	11.6	11.6		F (2 457)=4 04 ==0 04
		Non-H2F Site	10.9	11.4	12.2	11.1	11.3		F(3,457)=1.94,p=0.04
	Nutrition Knowledge score	H2F Site	44.6	40.9	40.9	41.4	41.8		
		Non-H2F Site	41.6	41.2	42.6	39.4	41.2	-	F(3,470)=3.72,p=0.01
Sleep	Pittsburg Sleep Quality Index	H2F Site	8.3	8.0	8.2	8.2	8.2	-	F (0.007) 0.70 m 0.54
	score	Non-H2F Site	8.0	8.5	8.3	9.1	8.4		F (3,337)=0.79,p=0.51
	Epworth Sleepiness Scale	H2F Site	9.1	8.4	8.9	9.1	8.9	-	F (2.447)=4.04 n=0.27
	score	Non-H2F Site	7.8	8.1	8.1	9.3	8.2		F (3,447)=1.04,p=0.37
Mental	Connor-Davidson Resilience	H2F Site	71.2	67.1	69.8	68.0	69.0	<u></u>	F (3,463)=2.77,p=0.04
	Scale-25 score	Non-H2F Site	71.7	72.9	70.4	66.8	71.0	-	
	Acceptance and Action	H2F Site	16.6	17.1	18.3	17.9	17.5		F (3,435)=0.56,p=0.64
	Questionnaire-II score	Non-H2F Site	16.7	17.3	16.4	19.1	17.3		
Injury & Pain	New Musculoskeletal Injuries	H2F Site	0.57	0.13	0.18	0.34	0.29	-	F(3,517)=16.4,p=<0.001
	(last 6 mo.)	Non-H2F Site	0.60	0.19	0.24	0.15	0.34		
	Current Pain Level	H2F Site	2.00	1.53	2.22	1.98	1.94	-	F(2,440)=4.0 ==0.04
		Non-H2F Site	2.37	2.54	1.86	2.42	2.36	-	F(3,440)=4.0,p=0.01

(Jayne et al., 2022)





Why Should Army Medical Department (AMEDD) Officers Care about H2F?

- It provides a framework to inventory themselves and others
- If you take care of warfighters, they will understand it
- H2F at its core is about balance. This may look different for everyone, but universally addressing the five domain will serve to optimize health performance.
- Question: how can we "be ready" if we are not "getting ready?"
- Another perspective: how are we strategically creating the time/space/opportunity to be our best as warfighters and DA Civilians?



(https://www.usar.army.mil/, n.d.)





Nutrition at the Forefront

- CDC reports, Four Main Causes of Diet Related Diseases: Poor nutrition, lack of physical activity, excessive alcohol and tobacco use
- White House report: Four Strategies to Improve Nutrition
 - Improve Food Access and Affordability
 - Integrate Nutrition and Health: Prioritize the role of nutrition
 - Empower All Consumers to Make and Have Access to Healthy Choices
 - Support Physical Activity
- Here's a way to look at this...

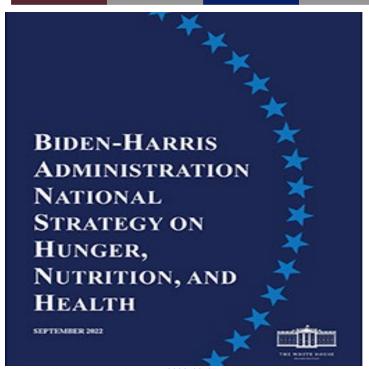
(https://www.producebluebook.com/2022/09/27/biden-harris-administration-releases-national-strategy-on-hunger-nutrition-and-health/, n.d.)

(https://twitter.com/TuftsNutrition/status/1574791049133842432, n.d.)





Nutrition at the Forefront, continued



(https://www.producebluebook.com/2022/09/27/biden-harris-administration-releases-national-strategy-on-hunger-nutrition-and-health/, n.d.)

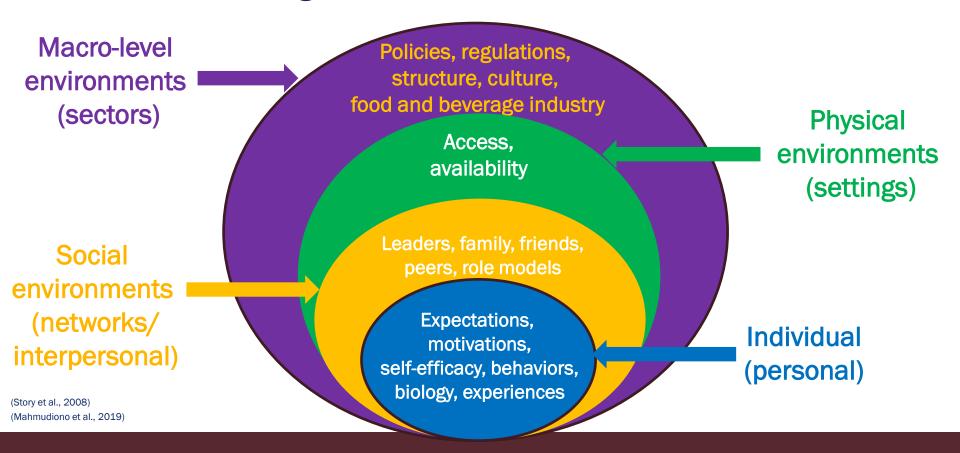


(https://twitter.com/TuftsNutrition/status/1574791049133842432, n.d.)





Social Ecological Model for "Nutritional Readiness"



Dietary Patterns







(Adobe Stock Photo, n.d.)





Food and the Military Environment













(https://www.dvidshub.net/, n.d.)





Poll #1

Are leaders aware of service members' connection to food, food environment, and operational readiness?

A. Yes

B. No







Soldiers and Food Choices

 Less than half of all service members consume the minimum intake of fruits and vegetables

 Soldiers largely consume a "westernized diet" (pro-inflammatory status, free radical production, endothelial dysfunction, lipid profiles)

 Cardiovascular and neurodegenerative diseases are linked to oxidative stress and inflammation

 Diets rich in fruits and vegetables containing flavonoids may improve cardiovascular and brain health

 Emerging research has begun to show that nutrition may play a role in mental health







H2F: Nutrition & Mental Readiness



(https://www.usar.army.mil/, n.d.)





Depression in the Military and Trends

- Suicide rates in the military in calendar year (CY) 2021
 *519 Service members died by suicide in CY21, compared to 582 cases in CY20 (Pentagon Annual Report)
- Rising rates of outside behavioral health referrals
- DoD addressing challenges- shortage of Behavioral Health Practitioners
- **Military One Source and Military Family Life Counseling
- Current strategies
- Less traditional strategies
- Emerging areas of science in nutrition "food and mood"
- Role of Inflammation (chronic exposure) and mental health

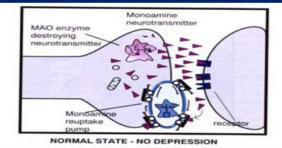


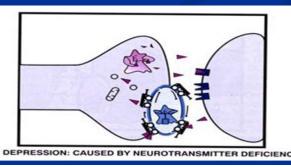
(Militarytimes.com, 2021)





Monoamine Hypothesis of Depression





(Stahl, 2000)

Brain and Mood

- ☐ Serotonin
- Dopamine
- Norepinephrine
- Mood, learning, sleep, memory, and appetite
- Challenges of traditional approaches
- Consider nutritional strategies to promote psychological health and mental performance





Food Psychology & Dietary Strategies



(https://thedailynourish.blog/2023/04/01/the-brain-food-connection-what-you-eat-can-impact-your-mental-well-being/, n.d.)





Bad vs Good Food

Challenge: How do you see food? What food narrative do you operate from?

- ☐ Food choices: Comfort vs fuel
- ☐ Food shaming vs appreciating foods
- Mindset change towards food...how can you make food work for you?
- Think on this concept...how can my psychological health be impacted with deficiencies in phytonutrients and other food sources?





(Adobe Stock Photo, n.d.)







Health Promoting Foods and Bioactive Compounds (Animal Models)



- Ebenezer et al. (2016) study demonstrated that blueberries used in a Post-traumatic stress disorder (PTSD) animal (rat) model oxidative stress, inflammation, improved rat maze performance and balanced neurotransmitter levels post psychosocial stress induced by cats (reduced anxiety).
- Zhou et al. (review) Resveratrol commonly found in food sources such as red wine, grapes, and nuts showed that resveratrol prolonged lifespan in honeybees, female flies, and mice; and improved learning, mood, and memory in animal models after four weeks treatment. Additionally, it showed a protection against age-associated bone loss in rats.

(<u>hindawi.com/,</u> n. d.)

(tomwestblueberries.com/, n.d.)





Nuts and Cognitive Health

- Research has shown routine *nut consumption* such as walnuts are associated with a protective effect against depression, Alzheimer's, etc.
- Nuts have bioactive ingredients such as antioxidants, melatonin, polyphenols, alphalipoic acid (ALA) (precursor to DHA), folate, and vitamins which play a factor against cognitive decline.

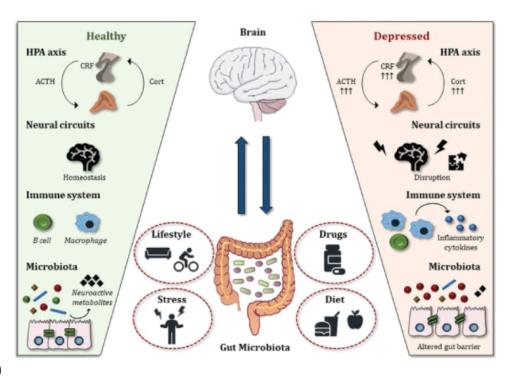


(Adobe Stock Photo, n.d.)





Gut Brain Axis



(Psychologicalscience.org, n.d.)





What Leaders Can Do...



www.dvidshub.net
Photo credit: Jose Rodriguez



www.dvidshub.net
Photo credit: Spc. Ethan Scofield





Leader Inspired Nutrition (LIN)

- LIN is proposed as a domain of leadership that <u>embraces</u> conscious <u>promotion</u> of Warfighter <u>healthy lifestyle</u> as a facilitator for optimal performance and operational readiness.
- LIN is an innovative approach in which leaders can influence their subordinates, transform their operational environments, and demonstrate investment in the Army's most prized human capital, its Warfighters.





(Adobe Stock Photo, n.d.)







Promote a
Performance
Focused
Food
Environment

Food policy

Food availability

Food access

Food knowledge

Meetings

Protected time to refuel

Model
Positive
Nutrition
Behaviors

Model healthy eating behaviors

Discuss Service Member readiness for change

Assess eating behaviors of team

Consider
Economic
Factors that
Affect

<u>Nutrition</u> Food Environment

Income

Food security

Nutrition security

Assess Nutrition Knowledge

Military culture

Ethnic culture

Cooking Knowledge

Nutrition literacy

Evaluate
Total Force
Fitness
Impacts
Nutrition

Psychological

Social

Financial

Spiritual

Medical and

Environment

Promote Wellness Partners

Army Wellness Centers

Operation Supplement Safety

Human performance Resources by CHAMP

Holistic Health and Fitness (H2F)



Build a Competitive Edge: Commanders

- NUTRITION LINK TO
 MISSION DEGRADATION
- OPERATIONALIZE NUTRITION AS A MISSION MULTIPLIER
- ☐ IDENTIFY THE NUTRITION

 LANDSCAPE TO SUPPORT THE

 SOLDIER AND MISSION (ACCESS

 AND RESOURCES)
- WEAPONIZE NUTRITION FOR OPTIMAL BRAIN PERFORMANCE (SPECIFICITY)
- ☐ LEADER ENGAGEMENT



(Adobe Stock Photo, n.d.)

Brooke Army Medical Center: Wellness Organizational Initiatives



- Strengthening our Culture of Health
- "Selah" Room
- 1st military treatment facility (MTF) to lead a Dietary Supplement Campaign with Operation Supplement Safety
- Considering environmental aesthetics to engage staff, patients, and visitors





Foods for Brain Health

Omega 3 (fatty fish, nuts-vitamin E, and flaxseed) Eggs (vitamins A, D, E, B ₁₂ , Folate and Selenium, Choline, Iron)						
Flavonoids "eat the rainbow"						
Fruits (blueberries, tart cherry, strawberries, blackberries,						
blackcurrants)						
Vegetables						
Fermented foods such as sauerkraut, kimchee, yogurt, etc.						
■ bananas						
■ Dark Chocolate						
☐ Teas						
Coffee						
Whole-grain foods: oatmeal, whole grain bread, pasta, cereal, brown rice						
Other considerations: regular exercise, getting good sleep, hydration (mainly						
water), yoga, mindfulness, and reducing alcohol intake						



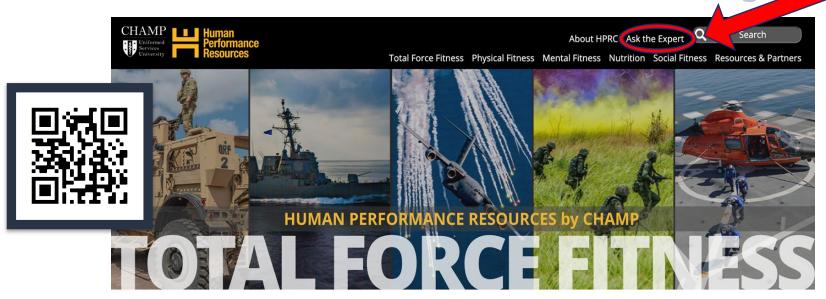




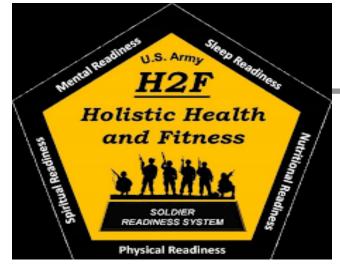


Resources: Ask the Expert

Can't find the answer? Visit HPRC-online.org



HPRC is the military's go-to source for ways to maximize performance, fitness, wellness, and nutrition





(Adobe Stock Photo, n.d.)

Key Takeaways

- Good nutrition, exercise, and mental well-being are essential to our health
- H2F is a way of life...
- Food is interconnected within our daily lives
- Nutrition is a brain optimizer and may serve to improve our psychological health
- Leadership is essential to the process





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Questions?





(Google images.com, n.d.)





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To receive CE/CME credit, you must register by 0800 ET on 27 October 2023 to qualify for the receipt of CE/CME credit or certificate of attendance. You must complete the program posttest and evaluation before collecting your certificate. The posttest and evaluation will be available through 9 November 2023 at 2359 ET. Please complete the following steps to obtain CE/CME credit:

- 1. Go to URL: https://www.dhaj7-cepo.com/content/oct2023ccss
- 2. Search for your course using the Catalog, Calendar, or Find a course search tool.
- 3. Click on the REGISTER/TAKE COURSE tab.
 - a. If you have previously used the CEPO CMS, click login.
 - b. If you have not previously used the CEPO CMS click register to create a new account.
- 4. Follow the onscreen prompts to complete the post-activity assessments:
 - a. Read the Accreditation Statement
 - b. Complete the Evaluation
 - c. Take the Posttest
- 5. After completing the posttest at 80% or above, your certificate will be available for print or download.
- 6. You can return to the site at any time in the future to print your certificate and transcripts at: https://www.dhaj7-cepo.com/
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