COVID-19 Response: Personal Protective Nutrition (PPN) & Personal Protective Lifestyle (PPL)

Optimizing Performance, Resilience, and Readiness

PANEL: Col(ret) Mylene Huynh, Maj Regan Stiegmann, CPT Bryan Stepanenko

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1645 – 1745 (EST)
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Pain Clinic
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Walter Reed National Military Medical Center
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“Medically Ready Force...Ready Medical Force”
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- Board certified Preventive Medicine, Family Medicine, and Functional Medicine Physician
- Adjunct Assistant Professor, Department of Preventive Medicine and Biometrics, USUHS
- Certified Food for Life instructor, Physician Committee for Responsible Medicine
- Practices pain management at the Walter Reed National Military Medical Center.
- Prevents and reverses chronic health conditions by providing personalized medical care that addresses root causes

“Medically Ready Force...Ready Medical Force”
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Flight Surgeon/Preventive Medicine
Lifestyle & Performance Medicine
USAF Academy - Operational Medicine Flight
USAF Academy - Colorado Springs, CO
Maj Regan A. Stiegmann, DO, MPH, FA CLM

● Board certified in Preventive Medicine and Lifestyle Medicine

● Founded USAF’s first Lifestyle & Performance Medicine consultation clinic at USAF Academy, 10AMDS

● Clinical champion for human performance optimization in Flight Medicine (AFI 48-101)

● Adjunct Clinical Professor, University of Colorado Anschutz School of Medicine

● Director, Digital Health Track, Rocky Vista University College of Osteopathic Medicine

“Medically Ready Force...Ready Medical Force”
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Army Family Physician
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CPT Bryan Stepanenko, MD, MPH, IFMCP

- Board Certified in Family Medicine and Functional Medicine
- Clinical Champion for Shared Medical Appointments (SMA) in the Military Health System
- Teaching faculty for the DoD’s only Functional Medicine training pathway through the National Capital Region Pain Initiative (NCRPI) based at Walter Reed National Military Medical Center.
- Delivers Personalized Lifestyle & Integrative Medicine that addresses root cause dysfunction for the warfighter community
- Educates on Military Operational Environment and Root Cause Dysfunction

“Medically Ready Force...Ready Medical Force”
Disclosures

- Drs. Huynh, Stieigmann, and Stepanenko have no relevant financial or non-financial relationships to disclose relating to the content of this activity.
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Learning Objectives

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

1. Describe PPN & PPL and discuss relevance utility of these concepts.
2. Outline the basic tenets of PPN and PPL as part of COVID response.
3. Comprehend a simple system of care delivery that identifies, engages, and empowers high-risk patients to make PPN & PPL choices.
4. Predict how to include PPN & PPL in health care delivery to optimize military performance, resilience, and readiness.

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Threat: Coronavirus disease (COVID-19)

- Severe acute respiratory syndrome coronavirus (SARS-CoV-2)
  - Novel RNA virus; no adaptive immunity
  - Some resemblance to SARS-CoV (2003)
  - Disables macrophage (innate immunity)
  - Severe complications associated with:
    - Cytokine storm
    - Inflammation
    - Oxidative stress
    - Endothelial dysfunction
    - Microperfusion
    - Microemboli

[Link](https://www.southampton.ac.uk/news/2020/03/covid-19-china.page)
Current Approach + Immune Resilience

- **Current Approach: Contain and Treat**
  - Personal Protective Equipment (PPE) & physical distancing to prevent exposure
  - “Flatten the curve” for hospital/Intensive Care Units (ICU) preparedness
  - Lab testing (secondary prevention)
  - Variation in clinical manifestation (asymptomatic to severe illness)
  - Treatment: unique to patient’s immunity/inflammatory status
  - Does not address host (human factor)

- **Immune Resilience Approach**
  - Integrate the science of prevention with human factor
  - Stratify high-risk populations:
    - Front-line personnel, Health Care Workers (HCWs), caregivers, household contacts
    - Conditions associated with oxidative stress, NLRP3 inflammasome trigger
      - Obesity, Diabetes Mellitus 2 (DM2), immune dysregulation (cancer, autoimmune)
Immune Resilience: The Human Factor

75% Symptomatic
2-14 Days (can spread SARS-CoV-2 without symptoms)

80% Home care (mild/moderate)

25% Asymptomatic

75% Symptomatic

20% Hospitalized (severe/critical)

Vulnerable population: Age > 60 yrs, obese, comorbidities such as Chronic Kidney Disease (CKD), Chronic Obstructive Pulmonary Disease (COPD), immunocompromised, serious cardiac conditions, sickle cell disease, type 2 DM

Source: CDC
“On average, Americans die sooner and experience higher rates of disease and injury than people in other high-income countries....this health disadvantage exists at all ages from birth to age 75 and that even advantaged Americans appear to be sicker than their peers in other rich nations.”

--National Academies of Sciences, 2013
Standard American Diet (SAD): “Nearly entire U.S. population eats a diet NOT on par with recommendations”

- 1 in 10 Americans eat recommended amount of vegetables and fruits (CDC, Nov 2017)
  - 3 cups vegetables & 2 cups fruits
- Most exceed in added sugars, saturated fats and sodium
- Widespread macro & micro-nutrient deficiencies

Pandemic of Vitamin D Deficiency...

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Obesity: A Growing U.S. Military Threat

- Basic Military Training graduates add
  - ~ 4 pounds per year
  - ~ 0.5 inches in abdominal circumference per year
- Over 4 years of military service:
  - 37.3% transitioned to a higher Body Mass Index (BMI) category

Sources:
- DoD Health of the Force Report, Jan 2019

Credit: Military.com

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Standard American Diet (SAD) triggers inflammasome pathway, biological aging & immunosenescence

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Does Chronological Age Predict Biological Age?

COVID Age Calculator: https://profile.covid-age.com

Fig 1

The concept of biological age predictors. A biological age predictor could be defined as a biomarker correlated with chronological age (black line), which brings additive information in the risk assessments for age-related conditions on top of chronological age. Hence, adult individuals of the same chronological age could possess different risks for age-associated diseases as judged from their biological ages (x’s in figure). Usually, the positive predictive value (red line) of a biological age predictor decreases from mid-life and onwards due to the increased biological heterogeneity at old age (compare to https://profile.covid-age.com).

Source: VitalityGroup.com
Gastrointestinal (GI) Tract: “Headquarters & Boot Camp” for the Immune System

- Modulation of central nervous system
- Protection against pathogens
- Synthesis of vitamins
- Immune system development
- SCFA production by fermentation of dietary fiber
- Promotion of fat storage
- Promotion of intestinal angiogenesis
- Conditioning regimens
- Endothelial damage
- Cytokine storms
- Increased capillary permeability
- Tumor necrosis factor-alpha (TNF-α)
- Interleukin-1 (IL-1)
- LPS

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Human Factor: Immune & Metabolic Resilience

- Increase innate immune effectiveness
- Increase immune tolerance
- Decrease inflammation
- Decrease oxidative stress
- Support healthy gut microbiome
- Support brain health

Resilience = PPE + PPN + PPL

“Medically Ready Force...Ready Medical Force”
DEFINITIONS:

● **PPN:**
  Food and nutrients that enhance immune and metabolic resiliency to reverse disease and optimize performance.

● **PPL:**
  Activities of daily living that enhance immune and metabolic resiliency to reverse disease and optimize performance.
**DEFINITION:**
Food and nutrients that enhance immune and metabolic resiliency to reverse disease and optimize performance.

**Personal Protective Nutrition (PPN) for COVID-19**

- Whole Food, Plant-Based
- High Quality Fiber & Protein
- Personal Protective Nutrition (PPN) for COVID-19
- Anti-Inflammatory
- Antioxidant
- Microbiome-Building
- COVID-19 Specific
Personal Protective Nutrition: What Do They Have in Common?

- American Cancer Society
- American Association of Clinical Endocrinologists
- Academy of Nutrition and Dietetics
- American Heart Association
- American College of Cardiology
- US National Dietary Guidelines
- Government of Canada: Nutritional Guidelines
- World Health Organization

“Medically Ready Force...Ready Medical Force”
Eat a variety of healthy foods each day

- Have plenty of vegetables and fruits
- Eat protein foods
- Make water your drink of choice
- Choose whole grain foods

HEALTHY EATING PLATE

- Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.
- Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.
- The more veggies – and the greater the variety – the better. Potatoes and French fries don’t count.
- Eat a variety of whole grains (like whole-wheat bread, whole-grain pasta, and brown rice). Limit refined grains (like white rice and white bread).
- Eat plenty of fruits of all colors.
- Choose fish, poultry, beans, and nuts; limit red meat and cheese; avoid bacon, cold cuts, and other processed meats.

Sources:
https://food-guide.canada.ca/en/, 2020
Harvard Healthy Plate, 2011

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Healthy food choices

Make it a habit to eat a variety of healthy foods each day.

Eat plenty of vegetables and fruits, whole grain foods and protein foods. Choose protein foods that come from plants more often.

- Choose foods with healthy fats instead of saturated fat

Limit highly processed foods. If you choose these foods, eat them less often and in small amounts.

- Prepare meals and snacks using ingredients that have little to no added sodium, sugars or saturated fat
- Choose healthier menu options when eating out

Make water your drink of choice

- Replace sugary drinks with water

Use food labels

Be aware that food marketing can influence your choices

Sources: [https://food-guide.canada.ca/en/](https://food-guide.canada.ca/en/), 2020
Personal Protective Nutrition: WHAT’S AMERICA LACKING?

FIBER

and high quality protein sources

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Personal Protective Nutrition: FILLING THE FIBER GAP

Only 3% of Americans eat the recommended daily amount of fiber.

(National Health and Nutrition Examination Survey (NHANES) 2003-2006)

Source:
USDA/NHANES 2003-2006

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Why fiber matters?

Low-density Lipoprotein (LDL) clearance, glucose regulation/insulin sensitivity, hormone balance, coronary heart disease, stroke, GI disorders, obesity, prediabetes, DM2, metabolic dysfunctions, weight loss

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Personal Protective Nutrition: RECOMMENDED DAILY FIBER

30-40 grams of natural fiber daily
(American Heart Association, 2016) (FDA, 2016)

Sources:
AHA 2016
FDA 2016

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Personal Protective Nutrition: FIBEROPTIC VISION

“Medically Ready Force...Ready Medical Force”
Personal Protective Nutrition: “FIBER-OPTIC” VISION

= 4 grams

= 3 grams

Sources: ADD

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GOOD FIBER = HAPPY, HEALTHY GUTS

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YOUR GUT IS YOUR SECOND BRAIN
Personal Protective Nutrition: GUT BIOME LINK TO HEALTH

DISEASE
- Depression, anxiety, stress
- Stress hormones released
- Activates hormonal pathways
- Inflamed gut

HEALTH
- Good mood, good sleep, physical exercise
- Happiness molecules released
- Vagus nerve stimulates brain activity
- Microbiome metabolizes food e.g., serotonin

Sources: https://lifetimeomics.com/the-omics-gut-brain-axis-2/, Accessed 2020

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EPIGENETIC REGULATION OF HEALTH GENES
Sources:

“Medically Ready Force...Ready Medical Force”
Sources:

“Medically Ready Force...Ready Medical Force”
DON’T GIVE FREE RADICALS A CHANCE!

OXIDATIVE STRESS  BIO-DAMAGE

MINIMIZING YOUR SYSTEMIC INFLAMMATION

“Medically Ready Force...Ready Medical Force”
## Personal Protective Nutrition: OPTIMIZING ANTIOXIDANTS

### Antioxidant

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<tr>
<th>Categories</th>
<th>n</th>
<th>mean</th>
<th>median</th>
<th>min</th>
<th>max</th>
<th>25th percentile</th>
<th>75th percentile</th>
<th>90th percentile</th>
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<td>Plant based foods a)</td>
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<td>0.00</td>
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<td>0.27</td>
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<td>211</td>
<td>0.18</td>
<td>0.10</td>
<td>0.00</td>
<td>1.00</td>
<td>0.05</td>
<td>0.21</td>
<td>0.46</td>
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<td>Mixed foods c)</td>
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<td>0.91</td>
<td>0.31</td>
<td>0.00</td>
<td>18.52</td>
<td>0.14</td>
<td>0.68</td>
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<td>3.34</td>
<td>0.06</td>
<td>261.53</td>
<td>1.90</td>
<td>6.31</td>
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<td>0.15</td>
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<td>4.84</td>
<td>0.53</td>
<td>1.24</td>
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<td>0.82</td>
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<td>4.10</td>
<td>0.09</td>
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<td>0.03</td>
<td>0.65</td>
<td>0.07</td>
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<td>0.21</td>
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<td>0.03</td>
<td>55.52</td>
<td>0.31</td>
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<td>2.36</td>
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<tr>
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<td>0.18</td>
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<td>3.31</td>
<td>0.06</td>
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<td>5.66</td>
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<td>120.18</td>
</tr>
</tbody>
</table>


“Medically Ready Force...Ready Medical Force”
Personal Protective Nutrition: OPTIMIZING ANTIOXIDANTS

Eat foods with rich hues

Maximize Phytonutrient Density

“Medically Ready Force...Ready Medical Force”
Personal Protective Nutrition: OPTIMIZING ANTIOXIDANTS

“Medically Ready Force...Ready Medical Force”
Personal Protective Nutrition: INFLAMMATION ESTIMATION

Sources: https://www.frontiersin.org/research-topics/9855/smoldering-inflammation-in-cardio-immune-metabolic-diseases

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Evidence has been mounting... Alzheimer’s, cancer, arthritis, asthma, gout, psoriasis, anemia, Parkinson’s disease, multiple sclerosis, diabetes, and depression among them—are indeed triggered by low-grade, long-term inflammation. (H “Medically Ready Force...Ready Medical Force”

Sources: NPR, 2020
45.4% of US adults are at increased risk for complications from coronavirus because of cardiovascular disease, diabetes, respiratory disease, hypertension, or cancer. (Emerg Infect Dis, 2020)

Sources:
Emerg Infect Dis, 2020
Personal Protective Nutrition: RELEVANCE TO CoVID-19

PRE-EXISTING INFLAMMATION (CHRONIC DISEASE) WORSENS COURSE OF COVID
Cardiovascular complications are rapidly emerging as a key threat in coronavirus disease 2019 (COVID-19) in addition to respiratory disease. The mechanisms underlying the disproportionate effect of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection on patients with cardiovascular comorbidities, however, remain incompletely understood.\textsuperscript{1, 2}
Personal Protective Nutrition: COVID-19 + Inflammation

■ VASCULOTROPIC VIRUS

■ Exacerbates endothelial cell dysfunction
  ● Infection of blood vessels
    ○ Impact of pre-existing conditions

■ COVID-19:
  RESPIRATORY + VASCULAR INFECTION

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Covid-19 accelerates endothelial dysfunction and nitric oxide deficiency

Shawn J. Green

Martel and colleagues provide a thoughtful review on strategies to increase airway nitric oxide to treat and possibly prevent Covid-19 [1]. However, it is becoming apparent that the clinical presentation of Covid-19 begins with acute respiratory distress in the lungs that moves quickly to vascular networks throughout the gut, kidney, heart, and brain with associated platelet-endothelial dysfunction and abnormally rapid life-threatening blood clotting [2]. SARS-CoV-2 is emerging as a thrombotic and vascular disease targeting endothelial cells throughout the body and is particularly evident in patients with cardiometabolic comorbidities, in particular hypertension, with associated endothelial dysfunction [3].

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TRANSLATION?
Personal Protective Nutrition: INFLAMMATION MINIMIZATION

“Medically Ready Force...Ready Medical Force”
Personal Protective Nutrition: INFLAMMATION MINIMIZATION

Sources: ADD

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Personal Protective Nutrition: SMART SUPPLEMENTATION

Daily Essentials

- Zinc: 30 - 60 mg (prevent viral replication)
- Vitamin C: 500-1000 mg with lots of water
- Vitamin D: 2000-5000 IU (immune modulator)
- Age > 50 years: Consider Multi Vitamin
  - Vits A, C, D, E, Bs, selenium, zinc

Additional Consideration

- Quercetin: 250-500mg (zinc ionophore)
  - 2-4 cups of green tea
- Curcumin: 500-1000 mg (effective IL-6 inhibitor)
  - ¼-½ tsp of turmeric + sprinkle black pepper
- Omega-3: 3000 mg EPA/DHA (pro-resolvin)
- Melatonin 5-10 mg 30-60 min before bed
- N-Acetyl Cysteine 600 - 1200 mg daily (Antioxidant)
- Fiber & Fermented Foods

Look for National Sanitation Foundation (NSF) or United States Pharmacopeia (USP) labels. Don’t purchase from third-party sellers.

Sources: Huynh, Edens, 2020
DEFINITION:
Activities of daily living that enhance immune and metabolic resiliency to reverse disease and optimize performance.
Restorative Sleep

“Medically Ready Force...Ready Medical Force”
The many roles of Melatonin

Melatonin has been effectively used to combat oxidative stress, inflammation and cellular apoptosis and to restore tissue function in a number of human trials; its efficacy supports its more extensive use in a wider variety of human studies. The uncommonly high-safety profile of melatonin also bolsters this conclusion.

- Produced in the pineal gland
- Activated by darkness
- Suppressed by light
- Induces sleep
- Reduces inflammation
- Antioxidant activity
Sleep

Chronobiology & Biorhythms

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The Stress is Killer... Literally
COVID-19 = Acute on Chronic

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Mindfulness, Meditation, Biofeedback

"Medically Ready Force...Ready Medical Force"
Exercise benefits brain & body:

- Decreases stress hormones
- Improves mental health
- Releases endorphins and endocannabinoids
  - Decreases pain
  - Improves sleep
- Increases circulation
  - Circulate blood and nutrients
  - Eliminate waste from cells
- Increases infection-fighting white blood cells and antibodies
- Increases brain-derived neurotrophic factors
- Increases extracellular superoxide dismutase

"Medically Ready Force... Ready Medical Force"
Regular exercise may prevent Acute Lung Injury (ALI)/Acute Respiratory Distress Syndrome (ARDS), severe COVID complication.

Extracellular Superoxide Dismutase (EcSOD) gene/protein therapy might be effective in treating ALI/ARDS under the condition of COVID-19 infection.
The American Heart Association Recommendations for Physical Activity in Adults

Exercise

At least 30 minutes of moderate-intensity aerobic activity OR 25 minutes of vigorous aerobic activity OR a combination of the two

AND

Moderate to HIGH INTENSITY muscle-strengthening activity at least 2 days per week for additional health benefits

At least 60 minutes of moderate- to vigorous-intensity aerobic activity Every day

© 2013 Learn more at heart.org/ActivityRecommendations.

© 2014 Learn more at heart.org/KidsActivityRecommendations.

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"Medically Ready Force...Ready Medical Force"
Humor & laughter increases NK cell activities

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“Medically Ready Force...Ready Medical Force”
Forest bathing increased natural killer (NK) cell activities and numbers...lasted 30 days

Phytoncides from trees decreased stress hormones

“Medically Ready Force...Ready Medical Force”
Forest Bathing = Mindfully Present in Nature

“Medically Ready Force...Ready Medical Force”
Change your thoughts, change your life

I Can’t Control
(I will let go of these)
- Others’ attitude
- Politics
- Others’ behavior
- The weather

I Can Control
(I will focus on these)
- What and When I eat
- My thoughts and emotions (Meditation)
- Who I spend my time with
- How I sleep
- How and when I express gratitude
- My attitude and behavior

Self-discipline/Mindfulness

How I Forgive and Let Go

How and When I sleep

What and When I eat

What I focus on as purpose and motivation

My attitude and behavior

Others’ social distancing and use of masks

The outcome of this pandemic

“Between stimulus and response there is a space. In that space lies our power to choose. In that choice lies our growth and freedom”
-- Viktor Frankl

“Medically Ready Force...Ready Medical Force”
INFINITE Mindset

“... How are we going to change to get through this”

“... How will we do what we’re doing in a different world”

“The opportunity is what will we be - not how do we preserve what we had”

https://youtu.be/6spNnsD-XOY

“Medically Ready Force...Ready Medical Force”
“Medically Ready Force...Ready Medical Force”

STOIC Mindset

“Is it my favorite thing - no - but it is what it is. Maybe my next contract, I’ll negotiate a little bit better.”

“This is the fight business. I’ve been on the end of many defeats in my life and I’ve rose back. I will not shy away from it. I will not make excuses for it. I will assess it and come back.”

“The more you seek the uncomfortable - the more you will become comfortable”
PPN & PPL Communication Tool

- Vitamin D3: 2,000-4,000 IU daily
- Vitamin C: 500-1000 mg daily
- Multivitamin: containing Zinc (15 – 30 mg) and Magnesium (200-400mg): consider foods and separate supplements if needed (USP or NSF seals of approval)
- EGCG (green tea or matcha; 200-250 mg or 2-4 cups tea daily) OR Quercetin (from foods like onions and apples daily)
- Melatonin, N-acetyl cysteine, Omega-3, and Curcumin on case-by-case basis

- Build a robust and diverse microbiome to educate and optimize immune function
- Increase PREbiotic foods (vegetable/fruit fiber feeds healthy bacteria)
- Increase PRObiotic foods (e.g., kimchi, sauerkraut, kombucha, kefir)
- Supplemental probiotics: case-by-case basis - may need following GI illness or antibiotics
- Ask your doctor/pharmacist if probiotics are right for you

DEFINITION of PPN:
Food and nutrients that enhance immune and metabolic resiliency to reverse disease and optimize performance.

COVID-19 Specific
- Personal Protective Nutrition (PPN) for COVID-19
- Microbiome-Building
- Antioxidant
- High Quality Fiber & Protein
- Anti-Inflammatory

- Whole Food, Plant-Based

- Eat the rainbow of colors daily (FOOD FIRST!)
- Veg & fruits: rich/variety colors = higher antioxidant activity
- Consider supplements to boost food sources: Vitamin C, resveratrol, curcumin (USP or NSF seals of approval on bottle)

- Eat FIBER (30 - 40 g daily) from natural sources including vegetables, beans, and fruits
- Plants have PROTEIN! Add more plant sources of protein
- Reduce toxins, chemicals, and hormones from food sources: know the dirty dozen and clean fifteen to select produce – Buy grass fed, free range, wild caught when possible
- Minimize processed/red meat consumption
- Have at least 1 bowel movement daily. May need more fiber, fluid, or movement to achieve

- Avoid high glycemic foods that spike insulin and cause inflammation (Glycemic Index)
- Minimize fried foods, “browned” meats, saturated/trans-fats
- Minimize sweets & avoid added sugar (read labels - sugar has many names!)
- Avoid sodas & sweet beverages (zero-calorie sweeteners can spike insulin – stevia is better)
- Use more herbs & spices and healthy fats (plant-derived Omega-3s, MUFA, PUFA)

Created by Task Force Resilience members:
Dr. Bryan Stepanenko (CPT USA)
Dr. Regan Stiegemann (MA), USAF
Dr. Mylene Mayh (Col (ret) USAF)

Jun 2020
PPN & PPL Communication Tool

- Seek the good: challenges and barriers are opportunities to innovate and grow
- Change what you can, find peace with what you cannot, and learn to recognize the difference
- Be courageous enough to ask for, to offer, and to accept help
- Maintain an adaptable mindset: How will you change to do what is needed?
- Seek to understand the perspective of others (Tactical Empathy): perspective = their truth + reality

- Practice self-regulation and emotional intelligence (STOP = Stop, take a breath, observe, proceed)
- Know your stress burden; heart rate variability (HRV) can indirectly measure total stress burden
- Reflect and express gratitude, journaling, meditating, and praying
- Volunteer, serve, and perform simple acts of kindness
- Prioritize and plan for activities that bring you joy
- Build relationships and communicate openly to create a climate of trust, cooperation, feedback, and mentorship

- 7-9 hours of restorative sleep nightly
- Be consistent with sleep/wake times (including weekends)
- Sleep trackers/apps for quantity & quality
- Ask family/friends for support & accountability
- Seek professional help if poor sleep persists

DEFINITION of PPL: Activities of daily living that enhance immune and metabolic resiliency to reverse disease and optimize performance.

- Take breaks from technology
- Get outdoors and get dirty (start a garden/play in yard)
- 15-20 min sun on exposed skin between 1100 – 1500 hr daily
- Be mindfully present in nature (hiking/forest bathing)
- Exercise outdoors whenever possible

- Do 30 min of at least moderate intensity activity (can’t sing during activity) 5-7 days weekly
- Include strength training at least 2 days weekly
- Cardiovascular (CV) Exercise boosts immune function and antioxidant activity while providing brain health and hormone balancing benefits
- Avoid overtraining: track daily resting heart rate (RHR) and heart rate variability (HRV) as biomarker to help decide what to do today

Created by Task Force Resilience members:
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Dr. Regan Steigmann (Maj, USAF)
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Virtual System of Care delivering PPN & PPL

Risk Stratified By:
- Illness Burden Index (IBI)
- Resource Utilization Band (RUB)
- Risk of Hospitalization

Adjusted Clinical Groups (ACG)

Services Offered:
- Virtual 1:1 Visits
- Virtual Health Coaching
- Virtual Shared Medical Appointments

High Health Risk & High Utilizers Engaged By:
- Chief of Nursing
- Clinic Commander
- Health System Specialist
- Population Health Team

Focusing On:
- PPN
- PPL

Force & Family Health Protection for Generations

Learning Health System: Care Delivery & Data Generation Paired to Demonstrate Value and Inform Innovation

“Medically Ready Force...Ready Medical Force”
Putting It All Together: Prevention + Human Factors

Key points:

- Metabolic status determines clinical severity
- Diet, microbiome, lifestyle factors shapes immune response
- Human factor = PPN + PPL = immune resilience
Prevention & Containment

Cough Etiquette

Physical Distancing

Wash Your Hands

“Flatten the curve”
- Protective Measures -

Avoid Touching Your Eyes, Nose, Mouth

Resilience & Readiness

Eat Healthy

Be Mindful

Work-life Balance

Meaningful Connection

Exercise

Sleep 7-9 Hours

Resilience & Readiness

Harrison Huynh

Meaningful Connection
Key Takeaways

- PPN & PPL is critical to address the human factor: Build immune and metabolic resilience
- PPN: Anti-inflammatory, antioxidant, and diverse microbiome foods & nutrients
  - Whole food plant-based w/ high quality protein & fiber
  - COVID-specific: Vit D, Vit C, Zinc, Zinc ionophores (Quercetin, Epigallocatechin Gallate (EGCG))
- PPL: Sleep, stress management, exercise, meaningful connection, time in nature, resilient mindset
DoD PPN & PPL Resources: Apps

“Medically Ready Force...Ready Medical Force”
Free health coaching for AD, Reserve and Family Members

https://www.militaryonesource.mil

“Medically Ready Force...Ready Medical Force”
DoD PPN + PPL Resources: Human Performance Resources by CHAMP

“Medically Ready Force...Ready Medical Force”
Summary/Call to Action

- Pandemic = SARS-COV-2 + obesity + chronic disease
- Human Factor: Promote PPN & PPL as foundation
- Implement strategies to address immune resilience
  - Front-line, HCWs, caregivers, household contacts
  - Patients at risk for severe COVID complications

Resilience = PPE + PPN + PPL = Readiness
References


“Medically Ready Force...Ready Medical Force”
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How to Obtain CE/CME Credit

To receive CE/CME credit, you must register by 0745 ET on 24 July 2020 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 6 August 2020 at 2359 ET. Please complete the following steps to obtain CE/CME credit:

1. Go to URL: https://www.dhaj7-cepo.com/content/clinical-communities-speaker-series-health-innovations-and-promising-practices-jul-2020
2. 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.
3. Follow the onscreen prompts to complete the post-activity assessments:
   a. Read the Accreditation Statement
   b. Complete the Evaluation
   c. Take the Posttest
4. After completing the posttest at 80% or above, your certificate will be available for print or download.
5. You can return to the site at any time in the future to print your certificate and transcripts at https://www.dhaj7-cepo.com/
6. If you require further support, please contact us at dha.ncr.j7.mbx.cepo-cms-support@mail.mil

“Medically Ready Force…Ready Medical Force”