



PERFORMANCE OPTIMIZING RATION COMPONENTS

Carbohydrates, Caffeine, Vitamins, Antioxidants... These are some of the special food optimizers that are balanced together to make Performance Optimizing Ration Components (PORC). PORCs are formulated to improve the physical and cognitive performance of Warfighters during sustained operations and under all climatic conditions.

WHY IS IT NEEDED?:

Environmental extremes — like searing heat, freezing cold, and high altitudes — drain the energy of Warfighters on the battlefield. PORCs give Warfighters the extra energy needed to extend their physical and cognitive endurance, ultimately enhancing their ability to recover from physical and mental fatigue at a much faster rate.

TECHNOLOGY:

The physiological basis for the PORC formulations is to help Warfighters conserve muscle and liver glycogen, their two major sources of energy. How is that done? By providing the Warfighter with exogenous sources (i.e., PORCs) of glucose (energy) in theatre, existing glycogen stores are preserved and the ability to maintain peak performance throughout the mission is optimized.

Some popular examples of PORCs are:

- **First Strike™ Bar:** The bar is formulated for rapid glucose release, but its solid structure causes digestion to occur over a longer period of time. As a result, fatigue in the Warfighter is delayed and endurance is extended.
- **Warfighter Energy Gel:** This is an energy booster gel that provides Warfighters an alternative to solid bars for performance enhancement. Laboratory data has shown these products to be effective in rapidly delivering glucose to the blood, leading to more readily available energy sources for the Warfighter.



The next generation of performance optimizing rations will be engineered to augment ergogenic benefits of existing PORCs by improving the Warfighter's overall health and readiness. Studies have shown that powerful antioxidants and anti-inflammatory compounds, such as quercetin and curcumin, have the potential to improve physical performance by increasing endurance, mitigating recovery time, and bolstering immune function. The amino acid tyrosine, a precursor to essential brain neurotransmitters, is also linked to improved cognitive performance. Ongoing research indicates that tyrosine administration has significant potential to enhance the decision making abilities of Warfighters operating in extreme and stressful environmental conditions. Overall, the holistic approach of using PORCs to maintain lean body mass and gastrointestinal well being and to increase caloric consumption will ensure Warfighters are ready to take on any challenges that arise in theater.

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One example of a next generation PORC:

Next Generation First Strike™ Bar: These multicomponent bars will be engineered as carrier matrices for incorporating encapsulated bioactive proteins (conservation of lean body mass), probiotics/prebiotics (gastrointestinal maintenance), functionally stable micro/macronutrients (mitigate degradation and increase ration consumption), targeted amino acids (cognitive enhancement) and anti-inflammatory/antioxidants (improve endurance/recovery). These new First Strike™ Bars will be developed with the intention of providing synergistic matrices for performance optimizers to augment their inherent bioavailability, shelf life, and acceptability.

BENEFITS:

PORCs have been statistically proven to improve Warfighter performance on many levels. In lab tests and field tests, ERGO (Energy Rich, Glucose Optimized) Drink improved overall performance by 17%; First Strike™ Bars containing caffeine and tyrosine have demonstrated optimized physical and cognitive performance; and gel products have shown optimized glucose absorption and energy delivery. PORCs are essential to the next generation of rations. Beyond boosting energy, they can improve a Warfighter's ability to make decisions and respond to a situation under extreme environmental conditions and stress. The holistic approach of the PORC program will ensure the Warfighter is able to achieve an optimum state of readiness on the battlefield.

POINT OF CONTACT:

DoD Combat Feeding Directorate

Phone: COMM (508) 233-4670, DSN 256-4670

E-Mail: usarmy.natick.nsrdec.mbx.nati-amsrd-nsc-ad-b@mail.mil

