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**Modular Operational
Ration Enhancement
(MORE) – High Altitude**

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US Army Natick Soldier RD&E Center

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MORE- High Altitude



Need

- To augment combat rations with scenario specific enhancement packs
 - Combat Warfighter weight loss
 - Offset significant loss in cognitive and physical abilities that can occur in extreme environments
- To provide potential platform for delivery of performance optimizing ingredients
 - Tyrosine for cold weather
 - Quercetin for extreme exertion
 - Caffeine and carbohydrate for long duration/high altitude

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- Year 1- High Altitude Enhancement Pack
 - Coordinated with USARIEM on nutritional needs
 - Conducted market survey for potential components
 - Conducted shelf life studies and sensory evaluations
 - Identified packaging requirements
 - Determine cost and producibility issues
 - Performed focus groups and user evaluations
 - Down-selected products and developed menus
 - Presented recommendations to the JSORF

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Warfighter Focus Group

- Conducted at Fort Drum, NY
- Warfighters redeployed from high altitude missions
- Aided in further identification and down selection of components that Warfighters will consume for inclusion into high altitude pack



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Additional Warfighter Surveys

- Camp Ethan Allen Mountain Warfare Training School
- 67 soldiers participated
- Three packs were further down selected/optimized

Nepal User Evaluation

- 18 mountaineering experts
- 8 days at 15,000 - 23,000 ft
- Included Warfighters
- Consumed 3 prototypes
- Very positive feedback



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New prototypes

Pack 1	Pack 2	Pack 3
Caffeinated Chocolate Pudding	First Strike™ Bar	Cracker
Nut Mix w/ dried fruit	Nut Mix w/chocolate discs	Spicy Cheese and Vegetable Spread
Toaster Pastry	Corn Nuggets	Zapplesauce™
Energy Gel-Wild Berry	Energy Gel-Lemon Lime	Baked Snack Cracker
Cheese Filled Pretzels	Carb-Elect, Drink Pouch, Fruit Punch	Mini First Strike™ Bar
	Beef Jerky	Carb-Elect, Drink Pouch, Lemon Lime
	Caffeinated Gum	
Calories: 1217 Weight: 349g	Calories: 1212 Weight: 306g	Calories: 1030 Weight: 308g

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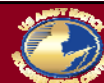


Prototypes using existing ration components

Pack 1	Pack 2
Cracker	Nut Mix w/chocolate discs
Cheese Spread, Jalapeno	Cheese Filled Pretzels
Zapplesauce™	Dried Cranberries
Fudge Brownie	Beef Jerky, Teriyaki
Mini First Strike™ Bar-Mocha	Beef Jerky, Sweet BBQ
Carb-Elect, Drink Pouch, Fruit Punch	Carb Fortified Bev, drink pouch
	Caffeinated Gum
Calories: 1025 Weight: 329	Calories: 1070 Weight: 280g

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Path Forward

- Briefed to DoD Nutrition Committee Feb 2009
- Field test with Special Operations Command
- Provided prototypes to deployed Warfighters
- Provide ACR for interim High Altitude MORE
- Prepare PCR/CID/ACR's for transition to DSCP

Further Development

- Develop additional hot-weather enhancement packs
- Coordinate with USARIEM on nutritional needs
- Obtain Warfighter recommendations of components

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Expeditionary Cold Weather Meals

- Oregon Freeze Dry delivered critical components for immediate assembly and deployment to Afghanistan
- Meals assembled at Natick for immediate deployment with Special Forces

MORE Interim High Altitude Prototypes

- SOPAKCO assembled and delivered 6900 MORE packs for immediate deployment to Afghanistan
- MORE packs will also be tested by US Army Special Forces and Navy Seals

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