Analyses suggest that participation in P3 activities resulted in some positive effects related to Soldier sleep-, activity-, and nutrition-associated knowledge, goal setting, and health behaviors.

THE PERFORMANCE TRIAD

The Performance Triad (P3) is a comprehensive health promotion initiative that targets a series of behaviors and goals to improve health readiness.

P3 Target Health Behaviors and Goals

P3 is designed to improve health readiness with strategic aims to—

- Optimize personal physical, cognitive, and emotional fitness and health readiness.
- Develop agile and adaptive leaders that can champion health readiness.
- Build units and communities that best enable readiness.
- Optimize performance in tactical environments.
The P3 Pilot

The P3 pilot occurred over a 6-month period and was designed to maximize Soldiers’ exposure to sleep, activity, and nutrition (SAN) information and activities based on personal and unit needs.

The Office of The Surgeon General System for Health team provided P3 materials and training models to unit leadership and partnered with local installation subject matter experts to train unit-designated P3 coaches. Using supplemental materials comprised of guide books, challenge books, warrior challenges, and a social media campaign, the coaches led informal SAN discussion sessions with small groups of Soldiers.

P3 pilot implementation varied across participating units and represented real-world application and adaptation. Five brigades (BDEs) at seven installations in the continental U.S. participated in the P3 pilot. One BDE served in a comparison role, and the remaining four engaged in P3 pilot implementation activities. BDEs participated in the pilot in one of three ways, as shown in the table below.

Personal Readiness Devices (PRDs), often referred to as fitness trackers, were included in the pilot to determine whether they supported greater behavior change among Soldiers who received the P3 Curriculum plus PRD when compared to Soldiers who received only the P3 Curriculum.

P3 Pilot Implementation Received by Participating Brigades

<table>
<thead>
<tr>
<th>Pilot Group</th>
<th>Implementation Received</th>
<th>Participating BDEs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P3 Comparison Group</strong></td>
<td>Assessment only (Survey and APFT*)</td>
<td>One Combat BDE (Infantry)</td>
</tr>
<tr>
<td><strong>P3 Training Group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum Only</td>
<td>Assessment, P3 training, Encouragement to use their own Personal Readiness Devices (PRDs)</td>
<td>One Combat BDE (Airborne) One Functional BDE (Engineer)</td>
</tr>
<tr>
<td>Curriculum+PRD</td>
<td>Assessment, P3 training, Provision of PRDs to participating Soldiers</td>
<td>One Combat BDE (Infantry) One Functional BDE (Medical)**</td>
</tr>
</tbody>
</table>

*Army Physical Fitness Test (APFT)

**This BDE was geographically dispersed across 3 primary locations.
THE P3 EVALUATION

The evaluation investigated the effectiveness of the P3 pilot in active Army BDEs. The goal was to examine SAN knowledge, attitudes, and behavior change among Soldiers in participating Forces Command (FORSCOM) units in conjunction with their typical responsibilities, varying operational tempos (OPTEMPOs), and the constraints of the garrison environment.

The evaluation included data from knowledge, attitudes, and behaviors surveys (baseline, midpoint, endpoint); Army Physical Fitness Test (APFT) results (baseline, endpoint); and focus groups (endpoint).

P3 PILOT SOLDIER DEMOGRAPHICS

Survey data from 4,418 Soldiers were included in the program evaluation.

16,952 SOLDIERS on rosters at baseline

9,402 SOLDIERS stayed in the same BDE throughout the pilot and provided data at all three evaluation time points

4,418 SOLDIERS paid attention to the survey items and did not straightline responses

“We challenged every Soldier in the formation to choose a small change they could make in sleep, activity, and nutrition that they could stick with for 6 months. Once Soldiers started seeing the positive results from their small changes, they were motivated to take bigger steps.”

– P3 Training Group Leadership Testimonial
Soldier Demographics from Survey Sample

Although there were statistically significant differences between groups in age, gender, rank, role, and race/ethnicity, these differences did not have any meaningful impact on the outcomes evaluated.

Mean Soldier Age Across Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Sample Size</th>
<th>Mean [SD]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
<td>1,170 Soldiers</td>
<td>26.5 [6.1]</td>
</tr>
<tr>
<td>Curriculum Only</td>
<td>1,503 Soldiers</td>
<td>27.0 [6.6]</td>
</tr>
<tr>
<td>Curriculum+PRD</td>
<td>1,745 Soldiers</td>
<td>27.7 [7.3]</td>
</tr>
</tbody>
</table>

Soldier Rank Distribution Across Groups

Soldier Race Distribution Across Groups
Percent of Soldiers Serving in a Coach or Leader Capacity

<table>
<thead>
<tr>
<th>Role</th>
<th>Comparison (n=1170)</th>
<th>Curriculum Only (n=1503)</th>
<th>Curriculum+PRD (n=1745)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coach</td>
<td>0.8%</td>
<td>2.0%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Leader</td>
<td>24.0%</td>
<td>28.9%</td>
<td>28.0%</td>
</tr>
</tbody>
</table>

*Roles of coach and leader were not exclusive. Data Source: KAB Survey

In addition to the survey sample, **479 Soldiers** in the Curriculum Only and Curriculum+PRD BDEs (collectively labeled the “P3 Training Group”) participated in **95 focus groups**. Data collected from the focus groups provided context to the survey findings by capturing the Soldiers’ P3 experiences in greater detail.

P3 evaluation findings are summarized according to each of the four P3 strategic aims and presented as the P3 pilot’s impact on (1) Soldier health readiness; (2) Leaders’ capability to champion SAN; (3) Unit, installation, and community environmental support of SAN; and (4) Warfighter management and mission planning.

**The Curriculum Only and Curriculum+PRD Groups are collectively labeled the “P3 Training Group” throughout this summary.**
P3 PILOT IMPACT ON SOLDIER HEALTH READINESS

This section highlights the impact of the P3 pilot on various Soldier outcomes, starting with those where P3 demonstrated effectiveness, followed by those where P3 did not demonstrate effectiveness. A summary of the PRDs’ impact concludes the section.

Baseline Target Attainment

At baseline, fewer than 10% of Soldiers across the P3 Training Group met weekday sleep targets, over 70% met activity targets, and fewer than 20% met nutrition targets. The baseline data highlight areas for improvement, notably in sleep and nutrition.

Percentage of Soldiers in the P3 Training Group who Attained Targets at Baseline

Note: Refer to page 2 for the P3 Target Health Behaviors and Goals
P3 Pilot Overall Effectiveness

The P3 pilot evaluation examined 22 Soldier outcomes, 6 of which evidenced P3 pilot effectiveness.

Outcomes Demonstrating Soldier Impact

The Soldiers in the P3 Training Group experienced significantly greater changes in several outcomes compared to Soldiers in the P3 Comparison Group.

SAN Knowledge over Time within the P3 Training Group

SAN-related knowledge increased by 7-9% in the P3 Training Group while it remained largely unchanged in the Comparison group.

“I’ve always been kind of a healthy guy, but [P3] just kind of boosted my knowledge really … I didn’t realize how many servings of fruit I needed or how many hours of sleep were optimal for day to day.”

- P3 Participant, Data Source: Focus Groups
Average daily fruit and vegetable consumption increased by approximately 1.5 servings per day in the P3 Training Group versus less than 0.5 additional servings per day in the P3 Comparison Group.

One and one-half additional servings of fruits and vegetables for Soldiers in the P3 Training Group equated to 4,872 additional fruits and vegetables per day by the end of the pilot.

Weekday sleep increased by 15 minutes per day for P3 pilot participants.

Fifteen additional minutes of sleep for 3,248 Soldiers in the P3 Training Group equated to 812 extra hours of Soldier sleep per night by the end of the pilot.

“Anyone who [has] been in the Army more than a few weeks has heard that ‘sleep is a crutch.’ We need to pivot our cultural norms to embrace the reality that sleep and healthy eating are performance enhancing...”

– P3 Training Group Leadership Testimonial
Engagement in goal setting related to healthy SAN behaviors increased for the P3 Training Group compared to the P3 Comparison Group.

Goal Setting over Time

Engagement in goal setting related to healthy SAN behaviors increased for the P3 Training Group compared to the P3 Comparison Group.
Outcomes without Soldier Impact

There were no meaningful changes over time between Soldiers in the P3 Training Group and Soldiers in the P3 Comparison Group for the following outcomes:

- Average hours of sleep per day on the weekend/non-duty day
- Frequency of caffeine consumption before bed
- Minutes per day of aerobic exercise
- Days per week of resistance training
- Days per week of agility training
- Body mass index
- APFT scores
- Ratings of overall health
- Self-confidence to engage in SAN behaviors
- Readiness to change SAN behaviors
- Average level of perceived leader support for SAN
- Average level of perceived peer support for SAN
- Perceptions of the environment
- Frequency of interaction with leaders on SAN topics
- Enrollment in the Army Body Composition Program
- The proportion of Soldiers reporting their use of various Army services (e.g., Army Wellness Services, registered dietitian)

The lack of effect in these areas may be due to several factors, including:

- Lack of direct alignment between P3 activities and targeted outcomes
- Brief timeline (i.e., 6 months) for changes to occur for some outcomes
- Cultural barriers to behavior change that P3 could not overcome
- High baseline scores for some variables, leading to limited opportunity for change over time
Impact of P3 Pilot Implementation on Target Outcomes over Time

Data on Soldiers’ attainment of targets at baseline and endpoint suggest that the P3 pilot may be more effective at influencing sleep and nutrition behaviors than activity.

*Though the percentage of Soldiers in the P3 Training Group meeting activity targets decreased over time, similar declines were observed in the P3 Comparison Group. This suggests larger Army trends (e.g., seasonal changes).
The Role of Personal Readiness Devices (PRDs)
PRDs were found to improve self-monitoring but not behavior change. On average, Soldiers who received PRDs monitored SAN behaviors more often over time than Soldiers who received the P3 curriculum without a PRD. Although PRD use increased reported self-monitoring, there were no differences in SAN behavior change between Soldiers in the Curriculum Only Group and those in the Curriculum+PRD Group.

Percentage of Soldiers who Self-Monitored at least One SAN Behavior

“The PRD shows an aspect of activity level, but … [the PRD] is not going to make [me], you know, the kind of Soldier athlete I need to be. … it was nice seeing all that tracking …but it’s not necessarily needed.”

– P3 Participant, Data Source: Focus Groups
P3 PILOT IMPACT ON LEADERS’ CAPABILITY TO CHAMPION SAN

Leader Self-Confidence to Coach, Teach, and Mentor P3

Average leader confidence in his/her own abilities to coach, teach, and mentor the P3 tenets was nearly 8.0 on a scale from 0 (not at all confident) to 10 (highly confident) at baseline for the P3 Training Group. In all of the groups, there was a very small decline in confidence from baseline to endpoint.

Leader Support of SAN

Soldiers rated leader support of SAN on a scale from 1 (strongly disagree) to 7 (strongly agree).

At endpoint, Soldiers in the Curriculum Only and Curriculum+PRD Groups rated leader support of SAN higher (means = 5.3 and 5.0, respectively) than Soldiers in the P3 Comparison Group (mean = 4.7).

Soldiers also rated the change in leaders’ ability to coach, teach, and mentor SAN since the start of the P3 pilot (i.e., over the 6 months prior to endpoint).

- By endpoint, 53% of Soldiers in the Curriculum Only Group and 47% of Soldiers in the Curriculum+PRD Group reported leader abilities to coach, teach, and mentor SAN were either somewhat better or much better.
- One in five Soldiers (20%) in the P3 Comparison Group reported similar ratings.

“Not everybody's going to buy in right at first, but the more you put it out there, the more they're going to buy in and this is with anything, if the leadership doesn’t buy in, the juniors, lowest Soldiers, are not going to buy in.”

- P3 Participant, Data Source: Focus Groups
Leader Changes to Unit Sleep Policies

Leaders in the P3 Training Group reported making more changes to their unit policies over time than did leaders in the P3 Comparison Group.

<table>
<thead>
<tr>
<th>Have a Barracks Policy that Addresses Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
</tr>
<tr>
<td>Curriculum Only</td>
</tr>
<tr>
<td>Curriculum+PRD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Have a 24-hour Duty Policy that Addresses Sleep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
</tr>
<tr>
<td>Curriculum Only</td>
</tr>
<tr>
<td>Curriculum+PRD</td>
</tr>
</tbody>
</table>

Despite movement toward changes in the area of unit policies, opportunities remain for improvement as the majority of leaders overall did not report having these policies in place at endpoint.

“My leadership really bit into it, they really wanted to initiate sleep stuff. They actually changed our PT schedule to the afternoon so that we could sleep in and report at 0830 in the morning, and then PT in the afternoon at 1600. Still got out at 1700’ish and we were able to still do family stuff and then get a good seven to eight hours of sleep.”

– P3 Participant, Data Source: Focus Groups
P3 coaches reported their self-confidence to coach, teach, and mentor or model positive health behaviors on a scale of 0 (Not at all confident) to 10 (Highly confident).

- At endpoint, coaches were, on average, confident (mean scores between 6.9 and 8.1) in their ability to coach or model positive health behaviors.
- Coaches were most confident about modeling positive physical activity behaviors. They were less confident about modeling good sleep habits.

P3 Coach Support of SAN

Soldiers rated their P3 coaches’ support of SAN on a scale from 1 (strongly disagree) to 7 (strongly agree). On average, Soldiers in the Curriculum Only and Curriculum+PRD Groups rated P3 coach support of SAN between 5.3 and 5.5. Soldiers reported coaches to be only slightly more effective at midpoint than at endpoint.

P3 leaders and coaches played an important role in the implementation of the P3 pilot. Support of P3 and buy-in from these leaders are critical to enhancing health readiness and integrating the P3 tenets into Army culture.
The unit and installation environments directly influence health readiness and are known influencers of individual behavior. Soldiers rated their level of agreement to a series of statements regarding the sleep, activity, and nutrition environments within their installations on a scale of 1 (strongly disagree) to 7 (strongly agree). Soldier perceptions of their environment did not show positive change over time in any of the groups. However, these ratings are helpful to identify those areas in which Soldiers perceive their environments to be most and least supportive of positive SAN behaviors.

Sleep Environment
Soldiers generally perceived that their personal sleeping environment was supportive of sleep, but the installation was not as supportive.

At endpoint:
- 89% of Soldiers in the P3 Training Group somewhat agreed, agreed, or strongly agreed (5, 6, or 7 on the scale) that their sleeping environment was sufficiently dark; and
- 82% agreed that it was quiet.
- 49% agreed that their installations encouraged sleep.

Activity Environment
Soldiers generally perceived their installation as supportive of activity.
- 91% of Soldiers in the P3 Training Group agreed that they had access to quality recreation facilities (gym, parks, sports fields); and
- 82% agreed that the installations encouraged activity.
- 77% agreed that they had reliable access to healthcare in case of injury.
Nutrition Environment
Soldiers reported several opportunities for improvement to support behavior change, particularly within the nutrition environment.

Among Soldiers participating in the P3 Training Group:

- 86% somewhat agreed, agreed, or strongly agreed that the commissary is a good place to get healthy food.

- Ratings of agreement for the dining facility (DFAC) and restaurants were lower (58% and 43% agreement, respectively) while ratings for the vending machines were the lowest (35% agreement).

- In focus groups, Soldiers expressed the desire for healthier food options (e.g., DFAC, food outlets on post, and vending machines) on the installation and more opportunities to prepare their own foods.

The Army must continue to focus on unit and installation environmental opportunities and barriers to SAN.

“Yeah, it’s just annoying to have so much money taken out of your paycheck to go eat at the DFAC, but you don’t want to eat there because you want to make your own food, and know what you’re putting in it so you know that you are eating healthy. Then, in our barracks we only have a microwave and we’re not even allowed to have crockpots and hot plates and stuff like that.”

– P3 Participant, Data Source: Focus Group

INCORPORATING P3 ON MILITARY INSTALLATIONS

Partnering with Dining Facilities
The P3 pilot took initial steps to improve the food environment in Army DFACs by training DFAC staff to implement the revised Go for Green® program. The Go for Green® program uses several strategies to promote healthy food choices including labeling, food placement, marketing, and menu modifications. Evaluation of these efforts is ongoing; preliminary results demonstrate an increase in food labeling and healthy food placement within participating DFACs. Although more work remains, these are important first steps to making the healthy choice the easy choice on Army installations.
P3 PILOT IMPACT ON WARFIGHTER MANAGEMENT AND MISSION PLANNING

Integration of P3 Concepts into Field Planning, Execution, or Recovery

Soldiers who had been in a field environment within three months of midpoint or endpoint reported on their experience using P3 concepts. In the Curriculum Only Group, up to one-quarter of the Soldiers who had been in the field reported that they integrated P3 concepts.

Percentage of Soldiers Reporting Integration of P3 Concepts

<table>
<thead>
<tr>
<th>Curriculum Only</th>
<th>Curriculum+PRD</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.2% Midpoint</td>
<td>32.2% Midpoint</td>
</tr>
<tr>
<td>25.9% Endpoint</td>
<td>27.7% Endpoint</td>
</tr>
</tbody>
</table>

The subset of Soldiers who reported integrating P3 concepts in the field were asked to select the activities they engaged in from a list of seven P3-related activities. The majority of this subset of Soldiers (more than 50%) across all groups and time-points reported that their unit—

- Developed a sleep rotation plan;
- Had discussions about SAN while in the field; and
- Monitored Soldiers’ hydration status.

The provision of field-related P3 curriculum prior to going into the field increased over time in the P3 Training Group.
A critical component of health readiness is Warfighter Management, which is accomplished through proper risk assessment, planning, and mission execution. Soldiers see the relevance of SAN to their mission and readiness; however, they reported a number of barriers to P3 implementation and integration into their personal lives.

**Barriers to P3 Implementation**

While additional barriers were listed, some were mission-specific:

- High unit OPTEMPO
- Prioritization of mission tasks
- Preparation for and engagement in field training

To address the mission-specific barriers, Soldiers recommended—

- Incorporating P3 tenets into field planning, execution, and/or recovery; and
- Providing Soldiers and leaders with additional tactical strategies for how to integrate P3 in the field.

“Once you are in [the] field you can’t really focus on all those things that you really want to focus on because like it depends on the mission you are on, because you know in the Army, the job is 24/7 so I can’t say hey Soldier you didn’t sleep eight hours so go ahead and take a break, go and sleep two hours and I will get somebody else to pull your guard for you.”

– P3 Participant, Data Source: Focus Group

**INCORPORATING P3 IN THE FIELD**

**Sleep Banking**

A battalion (BN) in one of the P3 pilot BDEs conducted a trial of sleep banking to improve performance. Leadership utilized P3 content to inform Soldiers about the connections between sleep and performance and how additional sleep may benefit an upcoming gunnery exercise. Duty days were shifted to begin at 0900 with PT at 1600, and Soldiers were instructed to keep sleep logs.

The unit increased its Soldiers’ gunnery scores from 759 to 919, attained 3 distinguished and 1 superior performance ratings, and Soldiers reported higher motivation and morale and less stress. In the future, units should be challenged to synchronize battle rhythms across the BN.

This information was not collected as part of the evaluation.
Recommendations described here are rooted in evaluation findings from the P3 pilot and organized by the P3 strategic aims.

**Recommendations to Improve Soldier Health Readiness**

- Army supports continued focus on Soldier SAN behaviors, particularly sleep and nutrition.
- Army supports the use of personally-owned PRDs (rather than providing them to all Soldiers as part of P3) as a sufficient, cost-effective first step toward increasing self-monitoring and behavioral awareness. While PRD use increased self-monitoring, it did not effect behavioral changes.

**Recommendations to Support Leaders’ Capability to Champion SAN**

- FORSCOM supports leader engagement in positive SAN promotion by:
  - Providing avenues to advocate for healthy food options and direct sleep policies.
  - Encouraging leaders to model positive SAN behaviors, provide support to Soldiers’ goal-setting, and connect Soldiers to installation and community resources.
  - Planning for adequate SAN in garrison and field operations.
- Army explores SAN-related policy changes to rely less on individual decision-making and facilitate population-level health changes.

**Recommendations to Enhance Unit, Installation, and Community Environmental Support of SAN**

- Army improves installation environments to promote SAN, particularly in the area of nutrition.
- Army leverages strategic partnerships and existing initiatives to synchronize SAN efforts by capitalizing on existing infrastructure (e.g., IMCOM Healthy Army Communities) and programming (e.g., Go for Green) to facilitate the integration of P3 principles into the Army culture.

**Recommendations to Augment Warfighter Management and Mission Planning**

- FORSCOM uses evaluation data to identify areas for targeted SAN improvement.
- Personnel responsible for P3 implementation should take Soldier feedback into account when planning for future missions.

P3 evaluation results within FORSCOM units demonstrate incremental progress toward meeting the Army goal of building a more resilient and healthy force. Future analyses are needed to provide a better understanding of the level of resourcing as compared to the level of benefit achieved. Findings from this evaluation will help drive P3 implementation forward within FORSCOM and the Army overall.