CREATING SUSTAINABLE AT SEA

Improving Aircraft Carrier Galley Plant Based Diets

Abstract

The plant-based diet options on board a Navy Aircraft Carrier are limited due to storage limitations and the available technology. New technology offers the ability to expand the ability of ships to offer healthier more plant-based food to sailors. Promotional nutrition campaigns offer increased knowledge of the benefits of increased consumption of planted based sources instead of nutrient deficient and calorie dense foods. The progress toward improving shipboard galley options to incorporate more plant-based food options is showing promise and will continue to evolve as the Navy continues to make improvements to better improve the health of its sailors.

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Introduction

The current practice of the Navy regarding nutrition and food preparation focuses on providing Navy personnel with safe and healthy food options. The focus of this paper will be on an aircraft carrier galley and the ability to maintain healthy sustainable food practices. Shipboard food services face different challenges when it comes to what food can be provided, not limited to what can be provided but what also can be maintained safely onboard for food preparation. The nutritional and dietary needs of service members have changed over time as more and more information on dietary needs and what nutrients are more beneficial to help keep service members functioning optimally. With this the Navy has made progress in changing from previously providing foods that were high in calories with limited nutritional value to a system that provides more well-balanced options when it comes to healthy eating. With this progress there continues to be issues with service members being overweight or obese, changing current Department of Defense practices to a more plant-based food dietary model would help to alleviate this trend, but this is not without its challenges. As stated previously shipboard galley operations face a multitude of challenges when providing safe and healthy meals to service members (Department of Defense, 2022).

Current Practices

The guiding instruction for the Navy food program is DoD manual 1338.1, it provides procedures and instruction for the DoD Food Service Program (DFSP). Under the DFSP charters are established for the DoD Joint Subsistence Policy Board (JSPB), Joint Services Recipe Committee (JSRC), and the Joint Services Operational Rations Forum (JSORF). In coordination with the Defense Logistics Agency (DLA) these respective committees and boards are

responsible for the procurement and sustainment of Navy food services. Additionally, the DFSP establishes standards for training in food safety and preparation. The DLA is responsible for establishing contracts with commercial food vendors for distribution, warehousing, and supply chain management. Vendors contracted by the DLA are required to comply with industry standards of quality and food protection, meet food service sanitation and food protection requirements, and have established hazard analysis with control check points to ensure food safety. Under the DFSP at the command level, depending on the size and number of personnel at the command, the responsibility to maintain and operate dining facilities is placed on Food Management Teams (FMTS). FMTS are required to implement nutritional guidelines and standards established by DoD mandate from recognized nutritional experts (Department of Defense, 2022).

Discussion

The Navy has progressively improved the quality and availability of nutritious food sources to better improve the overall health of service members. As previously stated, research on nutrition and dietary needs continues to shed light on the dangers of consuming certain kinds of food and the benefits of consuming others. Some of the ways the Navy has tried to increase the knowledge of what food is better for one to consume include a color-coding system. Foods were grouped in a color-coding system comprised of red, yellow, and green. Red indicates the food is least nutritious, usually high in fat and sodium, processed meats. The next category was yellow indicating more nutritious than red with lower fat and sodium content, less processed foods such as bread and soups. The final category green is used to identify the most nutritious with plant-based substances with low fat and sodium, salad, and legumes. While this system does serve to indicate which food is healthier for an individual it does not necessarily mean that

person will go green willingly. Changing the eating habits of an individual to eat more plant-based food sources has been the goal of Navy nutrition campaigns (Department of Defense, 2022). Unfortunately, there is no cure for this problem as the situations vary depending on where food is being served. While shore-based galley's have the capacity to stock and prepare more nutritious foods compared to a ship galley in a deployed status at sea. The galley of an aircraft carrier has the ability to store large amounts of supplies for food, but most of these previously have had to contain large amounts of preservatives to maintain their self-life while at sea. The storage spaces on current aircraft carriers feature single large freezers that contain multiple types of food including vegetables and meat. This creates a temperature control issue as freezers are opened regularly for galley operations and makes keeping plant-based foods at correct temperatures to maintain integrity. Aircraft carriers receive underway replenishment for food and other supplies at sometimes not regular intervals and as a result food supply such as plant-based food with low preservatives are difficult to keep stored without spoiling. Pest control is another factor that must be considered depending on the area the ship is operating in and foodborne illness from cross contamination of stored foods (Seck, 2020).

Recommendations

Improving the technology used onboard for storage and preparation would increase the ability of the ship to have more plant-based options. Comparing the Nimitz class with the Ford the ships look similar on the outside, but inside the Ford has new and innovative technology. The new Ford Class aircraft carriers are designed with new more energy efficient freezer units and ethylene filters. The legacy carriers used a centralized refrigeration unit that suffered from temperature fluctuations that made storing perishable foods difficult to store for extended periods of time. The new system uses modular refrigeration units with fluorescent lighting to remove the

temperature issues of the legacy system. Even more innovative is the inclusion of the ethylene filters in the units that trap gases that are responsible for causing ripening of fruit and vegetables, preventing spoilage, and allowing them to remain fresh for longer periods of time. To continually improve the overall quality of food, research into new technologies and systems to replace inefficient legacy systems is necessary (Seck, 2020).

Conclusions

The challenges associated with increasing the access and availability of plant-based food options on Navy aircraft carriers are difficult to address. Changes to ships are a slow process as the cost of making these changes in the short term often shadows the benefits in the long term. Progress is slow transitioning from inefficient legacy systems of the past to more energy efficient systems that allow expanded access to more beneficial nutrient dense plant-based food. Advances in technology are allowing expansion of options for shipboard food storage, the problem with implementation of this technology is the cost of replacing the old systems and the down time for ships that would reduce the mission ready capability of the Navy (Seck, 2020). With technology changes and integrating new and more energy efficient methods in the galley to allow fruit and vegetables to be stored not just for longer periods of time but also to remain fresher. The short term and long-term effects on the health of a sailor with multiple ship deployments can have severe impacts on the health of the individual later in life (Department of the Navy, 2008).

Improving the health of sailors has been the continuing goal of the Navy and through various nutrition campaigns the information on the benefits of nutritional foods has improved the health of sailors that have shore-based galley access. As previously stated, service member at sea

face limited access to health promoting foods in shipboard galleries, in addition to this the stress of the working conditions creates an environment that leads to health conditions such as heart disease and colon cancer later in life. The goal of the Navy is to continuously improve the quality of life for its sailors and while the process is slower in some areas of service life the goal of improving the physical and nutritional standards to allow sailors to live longer healthier lives continues to remain a priority (Department of Defense, 2022).

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