# ERGONOMIC IMPROVEMENTS IN NAS SIGONELLA GALLEY REDUCE THE RISK OF INJURIES AND WMSD'S

Feeding over 1,000 sailors, U. S. civilians, and Italian Nationals daily is not an easy task. At U. S. Naval Air Station Sigonella, Italy (NASSIG) the staff of the Naval Air Station (NAS) II galley, a food preparation and serving facility, has recently reduced the risk of occupational injuries, especially ergonomic disorders. Typically, galley employees lift and carry food and supplies, stock shelves, cut meats and vegetables, prepare and serve food, and clean up after each meal. These work tasks put food service workers at risk for back, shoulder, neck, arm, and hand injuries and work related musculoskeletal disorders (WMSDs).

**Food counter, customer side, NAS II Galley, Sigonella, Italy**

At NAS Sigonella, an ergonomics program was developed to reduce workplace injuries and WMSDs. Ergonomics is the science of fitting the work to the worker, instead of requiring the worker to adapt to existing work conditions.

Work tasks that require a person to use the same set of muscles for long periods during each day's work shift tend to overburden and fatigue those muscles. This overburdening may lead to a WMSD, a disability that usually involves weakness and discomfort. WMSDs commonly involve the wrists, arms, shoulders, neck, legs, or back. The discomfort often improves after discontinuing activities that weaken the affected muscles and getting medical treatment for the WMSD.

**Ergonomically designed mobile salad bar at NAS II galley**

The goal of the ergonomics program is to reduce the frequency and severity of WMSDs by redesigning work tasks or workstations using

procedures and tools that minimize the risk of WMSDs. Work tasks, equipment, and tools that are ergonomically designed help to reduce the risk of work-related injuries and WMSDs by allowing workers to avoid repetitive motions, awkward positions, and unnatural postures.

The NAS II galley is designed with efficiency and worker comfort in mind. Cashiers have the choice either to sit on an adjustable stool with a foot ring or to stand at the pay counter. The ability to alternate between seated and standing positions reduces the harmful effects, such as back pain, of a static posture from constant standing. The pay counter has a smooth, curved edge that eliminates compression to the cashier's arms. Compression of the arms can impede blood circulation and lead to nerve disorders of the forearms or hands.

The galley's mobile salad bars have lightweight vegetable trays that reduce strain on a worker's arms, shoulders and back when lifting and carrying food trays. Galley workers also use carts with easy grip sides and large rubber wheels that make the carts easy to maneuver.

**Lightweight vegetable trays reduce shoulder, arm, and back strain**

Food servers load clean dishes onto carts that automatically raise and lower the dishes, eliminating the need for servers to bend over to pick up each plate and bowl. The next dish on a "self-actuating" cart automatically pops up as a server removes the top dish. As shown in the picture at left, the dishes are within the server's reach. The countertop where the servers place the dishes is 36-inches high, which ergonomists consider an ideal height for 90% of food service workers.

**Self-actuating carts eliminate bending to pick up dishes**

**Self-actuating cart at left. Serving countertop at ergonomically correct height of 36 inches**

The three large tilt-table deep fryers in the kitchen's food preparation section have food baskets to make cleaning them easy. This design allows the equipment to be rotated for scrubbing and to prevent awkward body positions. The deep fryers are surrounded by a berm, a rim that prevents leaked or spilled liquids from spreading outside the bermed

area. Leaks and spills stay inside the berm, avoiding a slip and fall hazard throughout the remainder of the kitchen. It also reduces the surface area from which splatters and spills must be promptly mopped up. There are also non-skid strips inside the berm to reduce slips and falls in that location, and a floor drain for efficient cleaning of the fryers and the floor around them.

**Bermed deep fryer area controls leaks and spills**

A table with anti-fatigue matting, shown at right, is located outside and in front of the bermed area. The mat pads the standing surface, which reduces fatigue of the legs and back. The table shown, which has vegetable, or *veggie*, pans on the lower shelf, is used for cutting large vegetables. The small size and light weight of the pans reduce the risk of a lifting injury when a food service worker lifts the full *veggie* pans to take them to the food serving area.

**Anti-fatigue mat reduces leg and back fatigue**

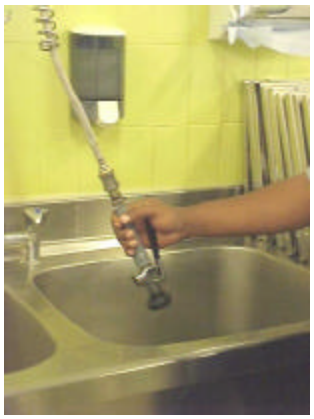
In the galley, utensils that are used during food preparation hang within easy reach to minimize reaching and stretching. Kitchen knives are kept sharpened to minimize exertion when cutting foods. Sharp cutting tools reduce physical exertion. Workers also rotate work tasks to avoid fatigue and WMSDs.

Cooks use the upper levels of oven racks and bread warmers, shown at right, to avoid excessive bending and straining. Lightweight cooking trays, in photo at left, and casserole dishes help prevent back strain and other injuries.

**Mobile racks with lightweight trays prevent back strains**

**Using upper levels of oven racks avoids excessive bending**

Workers in the pre-wash section of the scullery use hand-held nozzles to wash pots, pans, dishes, and flatware. The nozzles are designed to allow workers' to keep their hands in an ergonomically neutral position to reduce the risk of hand and wrist injuries and WMSDs. After pre-washing, soiled items are placed in containers that are loaded directly into the dishwasher. Once items are placed in the containers, they remain in them throughout the entire cleaning process to eliminate handling and to reduce the risk of contamination or breakage. Containers of clean items are then removed from the dishwasher and placed onto self-actuating carts.



**Hand-held nozzles keep hands in neutral position**

**Employees carry crates from pallets to cold storage**

NASSIG galley stockroom personnel used to have to lift, reach overhead, bend, and stretch to restock shelves. Those movements, which increased the risk of WMSDs of the back, neck, shoulders, and arms, have been greatly reduced by using pallet jacks to transport heavy loads of vegetables, canned and paper goods, and meats from delivery trucks into the storerooms. Workers trained by the unit safety representative use a variety of lifting techniques to prevent back injuries while removing crated vegetables from pallets by hand and carrying them into cold storage.

Shelves in the main galley's storeroom are between eight inches and 70 inches from the floor. Shelf height is critical to establishing stocking and retrieving practices that prevent back injuries. Cases of goods are passed along a line of workers who transfer them from the pallet to the shelves. When a shelved item is needed, a storeroom worker opens a case and removes one can at a time. A full case on a shelf at 8 inches weighs 25 pounds, which exceeds acceptable weightlifting limits as established by the National Institute for Occupational Safety and Health (NIOSH). A single 60-ounce

**Shelf height is critical for preventing lifting injuries**

can of beans stored on the same shelf is acceptable for lifting and storing.

NAS II Galley workers are pleased with the ergonomic improvements that reduce their risk of WMSDs and other occupational injuries in food handling, preparation and serving. They are protected and their productivity is increased as a result.

**Galley worker pushes easy to maneuver, lightweight transport cart**

Point of Contact: Ms. Wanda Walters, Command Ergonomic Program Manager, U. S. Naval Air Station Sigonella, Italy
Commercial Telephone: 011 39 095 86 6267
DSN: (Overseas) 624-6267
Email: waltersw@nassig.sicily.navy.mil