

# Work Related Activities

(e.g. lower back problems)

## *Current Practices and Initiatives In Injury Prevention*

---

### **Back Care/Injury Prevention Class**

National Naval Medical Center

### **Enterprise Safety Application Management System (ESAMS)**

NOSC Nashville

### **Ergonomics**

Department of Defense Ergonomics Working Group

### **Exertional Heat Injury (EHI) Prevention and Management**

Marine Corps Bases Okinawa, Camp Smedley D. Butler & III Marine Expeditionary Force

### **Flight Medicine Injury Prevention**

VAQ-142

### **Heat Stress Prevention**

USS Dextrous (MCM 13)

### **Injury Prevention Practices**

USS Harry S. Truman (CVN-75)

### **Injury Prevention Program**

USS John C. Stennis (CVN-74)

### **Keep it Simple Sports Medicine**

Marine Corps Bases Okinawa & Camp Smedley D. Butler

### **Navy Fleet Physical Therapy Program**

USS Nimitz (CVN 68)

### **Navy Operational Fitness and Fueling Series (NOFFS) as Rehab Recommendation**

Naval Hospital Pensacola

### **Predictions of Response to Intra-articular Injections of Hyaluronic Acid for Knee Osteoarthritis**

Naval Hospital Portsmouth

### **Primary Injury Prevention Initiatives at Recruit Training Command**

Naval Health Clinic & Naval Stations Great Lakes

### **Safety 8 O'clock Reports**

USS Rentz (FFG 46)

**Safety Discrepancy Cards**

USS Barry (DDG 52)

**Safety Information & Awareness**

USS Peleliu (LH-5)

**SMART Action-Impact**

Naval Hospital Camp Lejeune

**Shuttle Buses in the Shipyards**

USS Mesa Verde (LPD 19)

**Surface-Contact Tracking**

USS Ford (FFG-54)

## **Back Care/Injury Prevention Class**

NATIONAL NAVAL MEDICAL CENTER  
Bethesda, MD

**Purpose:** The program was implemented at the National Naval Medical Center to prevent back problems and/or helping individuals with minor back pain.

**Background:** Back Care/Injury Prevention Class developed implemented by Health Promotion Dept, Lauren Thomas Dept Head, and Exercise Physiologist.

**Discussion:** The class Goals included:

1. Review anatomy of the back
2. Review typical causes of back pain
  - a. Strains, sprains,
  - b. Herniated disk
  - c. Osteoarthritis
  - d. Weak muscles, poor posture
  - e. Obesity
  - f. Sciatica
3. Correct body mechanics
  - a. Standing, walking
  - b. Sitting
  - c. Driving
  - d. Sleeping
  - e. Lifting
  - f. Ergonomics at work
4. Physical Activity to reduce back pain
5. Back exercises
  - a. Pelvic tilt
  - b. Hip rolls
  - c. Cat stretch
  - d. Back stretch propped on elbows
  - e. Knee to chest
  - f. Curl-up
6. Steps to relieve back pain
7. When to see a doctor
8. Handout: Channing Bete: An inside look at your back and how to care for it

The total cost of start-up expenditures was \$200 dollars (see below). Manpower consisted only of the Department Head, Health Promotion (G-12 level) and costs for manpower totaled \$200 (\$/FTE= \$40/hr)

**Equipment:**

<b>Item</b>	<b>Units</b>	<b>Unit Cost</b>	<b>Total</b>
Channing Bete booklet	100	1.00	\$100.00
Folder	100	1.00	\$100.00
<b>TOTAL:</b>			<b>\$200.00</b>

**Recommendation:** No recommendation provided.

**Contact Information**

Dept Head, Health Promotion  
National Naval Medical Center, Bethesda, MD

## **Enterprise Safety Application Management System (ESAMS)**

NOCS NASHVILLE

Nashville, TN

**Purpose:** Use of Safety and Occupational Health (SOH) data management software.

**Background:** Members who experience injury related problems are sent to the Emergency Room (ER) which is located within another facility. Most problems require X-rays which the NOSC Nashville facility are is not capable of handling. This results in members being away from their unit and the Center for 3-6 hours. This separation time is costly and administratively cumbersome. The medical office will see all members before going to the ER in case there are issues that are easily taken care of. The NOSC Nashville population size is 330 with a ratio of 60/40 percent male/female. The average rank is PO1 with occupation/rates operational/sea going rates.

**Discussion:** CNIC has selected one safety management software program across its enterprise for Safety and Occupational Health (SOH) data management of mishap reports, training, direct and indirect costs, medical surveillance, hazard analysis, etc. All CNIC commands and all tenant commands receiving BOS Occupational Safety and Health (OSH) services from CNIC regions shall implement and use ESAMS. An ESAMS implementation/training schedule has been provided to all CNIC regions.

In order to expedite the implementation process and ensure the continued success of ESAMS, each region shall assign an ESAMS coordinator and as a minimum, one alternate. Also, CNIC Fire and Emergency Services (F&ES) have selected ESAMS to manage their F&ES program. Successful implementation of ESAMS will require support from Regional/Installation Commanders.

ESAMS provides a secure NMCI compliant web-based means to manage all facets of the Navy's safety and health programs. ESAMS will enable CNIC to fully comply with all current OSHA and OSH standards, and provides real time data for headquarters and command level personnel allowing them to make informed decisions based on current data and metrics.

The following are Annual Training provided not only by ESAMS but also in house training:

- a) Explosive Safety
- b) Motorcycle Training
- c) Heat stress
- d) Hazmat/ HazWaste
- e) Environmental risk
- f) Occupational risk
- g) Lifting / supply management
- h) Traffic safety
- i) Sports/ recreational safety/ off duty safety

**NOSC Nashville baseline measurements defining the types and impact of annual injuries on your command**

**a. Annual number of musculoskeletal injuries.**

Total	30
(1). Tactical/Training related:	10
(2). Occupational (ex back pain, carpal tunnel)	10
(3). Sports/Recreation related	10

**b. Annual impact of musculoskeletal injuries:**

1. Annual light duty days (member stayed within the command):	152
2. Annual limited duty days (member moved to another command):	0
3. Annual lost work days	50
4. Annual Outpatient Visits	100
5. Annual Surgical Procedures	3
6. Annual Hospitalizations	0
7. Annual Medical Separations:	1
8. Annual Deaths:	0

Comments: NOSC Nashville is considered a REMOTE site. All of our injuries are sent to the ER and paid by the MMSO office.

**PROGRAM RESOURCE REQUIREMENTS**

**1. Please identify the start-up (one time) expenditures required to implement your program.**

**b. Equipment:**

Item	Units	Unit Cost	Total
treadmill	1	\$1,000	\$1,000
Exercise bike	1	\$500	\$500
Elliptical	1	\$1,000	\$1,000
CPR manikins	5	\$1,000	\$1,000
<b>TOTAL</b>			<b>\$3,500</b>

Comments: Being a remote site, it was mandated that all full time staff have access to the local YMCA and have full memberships. All equipment is not required but all equipment having to do with the PFA is available.

**Recommendation:** No recommendation provided.

**Contact Information**

Med Department Head  
NOSC Nashville, Nashville, TN  
Operational Support

## **Ergonomics**

### DEPARTMENT OF DEFENSE ERGONOMICS WORKING GROUP Aberdeen Proving Ground, MD

**Purpose:** To prevent or control injuries and illnesses by eliminating or reducing worker exposure to work-related musculoskeletal disorder (WMSD) risk factors.

**Background:** The Department of Defense (DoD) Ergonomics Working Group serves as the technical advisor to the DoD Components through the DoD Safety and Occupational Health Committee, and partners with other Government agencies regarding the safety and health aspects of work-related musculoskeletal disorders.

The DoD Ergonomics Working Group:

- Identifies significant policy and program execution issues.
- Prepares DoD draft positions.
- Cross-feeds across all DoD Components information on the technical aspects of ergonomics and DoD resources available for the anticipation, recognition, evaluation, and control of hazards associated with work-related musculoskeletal disorders.

**Discussion:** The DoD Ergonomics Working Group provides an electronic newsletter each month that presents ergonomics news, guidelines, programs, interventions, tips and best practices. These newsletters can be accessed from their website, <http://www.ergoworkinggroup.org/>, dating back to the year 2002 or individuals can have them directly emailed to them each month by being added to their mail list at [news@ergoworkinggroup.org](mailto:news@ergoworkinggroup.org)

**Recommendation:** No recommendation provided.

### **Contact Information**

Department of Defense Ergonomics Working Group  
Army Public Health Command  
Aberdeen Proving Ground, MD 21010-5403

## **Exertional Heat Injury (EHI) Prevention and Management**

MARINE CORPS BASES OKINAWA, CAMP SMEDLEY D. BUTLER AND III  
MARINE EXPEDITIONARY FORCE  
Okinawa, Japan

**Purpose:** To provide policy, assigns responsibilities, and establish guidelines to prevent and manage Exertional Heat Injury (EHI) within III Marine Expeditionary Force (MEF), Marine Corps Bases Japan (MCBJ), and tenant activities who experience temperatures of 80 F or above according to the Wet-Bulb Globe Temperature Index (WBGTI). Temperatures of this magnitude result in various heat injuries including but not limited to heat cramps, heat Syncope, heat exhaustion and heat stroke.

**Background:** EHI occurs commonly in Marines and Sailors exerting in hot, humid, low wind environments. EHI is affected by multiple contributing factors relating heat loss to metabolic and environmental heat accumulation. The spectrum of EHI ranges from simple “heat cramps” to life threatening “heat stroke”. Permanent damage and death are directly related to time at temperature. Common sense and an understanding of the basic concepts presented in this program are essential to the effective identification, prevention and treatment of EHI.

**Discussion:** The mission of the program was to establish procedures for the notification and tracking process of heat conditions and to provide instructions on the prevention and treatment of heat casualties within III MEF, MCBL, and tenant activities. Commanders at all levels are responsible for the planning and execution of EHI prevention and management. Program runs from 1 May to 30 October when temperature exceeds 80 F.

A “Heat Deck Standard Operating Procedure Guide” was developed. The guide includes a report of heat injury form, wet-bulb globe temperature (WBGT) system overview and Automatic Heat Stress System (AHSS) contact information for camp/stations, heat flag activity limitations, work/rest ratios and fluid replacement guide as well as a physical conditioning and acclimatization program guide.

The program has reduced heat injuries by 52 from 125 FY08 to 73 FY09 (58% reduction). The program resulted in savings for EMS, ED and admission in both time and dollars. Savings are estimated to run in the tens of thousands of dollars.

**Recommendation:** Data has not been mined to date. The reduced morbidity and mortality is also not calculated to date.

### **Contact Information**

Head, Sports Medicine Department  
Naval Hospital  
Camp Lejeune, NC

Marine Corps Bases Okinawa, Camp Smedley D. Butler and III Marine Expeditionary Force-  
Okinawa, Japan

## **Flight Medicine Injury Prevention**

VAQ-142

NAS Whidbey Island

**Purpose:** To reduce work and exercise related injuries leading to light and/or limited duty, formal physical therapy consultations, and/or orthopedic consultation.

**Background:** VAQ-142 command was experiencing work and exercise related injuries leading to light and/or limited duty, formal physical therapy consultation, and/or orthopedic consultation with or without surgical intervention, including most commonly back strains, disc herniations, ankle sprains, PFPS, knee ligament and meniscus derangement, shoulder rotator cuff tendonitis and tears, and shoulder dislocations. In the last year, three individuals have been placed LIMDU, 10 individuals have required surgical intervention, and numerous work days have been lost due to musculoskeletal injuries.

**Discussion:** The commands population size 182 with a 90/10 percent ratio of male/female. The average rank is an E-4 and is comprised of all aviation squadron rates: AM, AD, AT, AO, AE, AME, PR, LS, YN, PS, IS, IT, CTT, GM, and MA.

The commands injury prevention program has been integrated into their health promotion programming which is run by the medical department consisting of a flight surgeon (LT) and corpsman (HM2). All products are focused on education and have included health promotion bulletin board postings, safety newsletter articles, and safety stand-down lectures.

Example: Recent safety newsletter article focused on prevention on exercise induced injuries and a recent safety stand-down lecture covered the topic of back pain prevention.

In addition, all command members are aware of the availability of the medical department to individual consults regarding musculoskeletal injuries, whether at shore or on deployment. Consultation advice includes prevention strategies, physical therapy instruction, and medical advice for follow-on care. Finally, the medical department leads by example and practices all above recommendations and guidelines.

**VAQ-142 Baseline measurements defining the types and impact of annual injuries on your command.**

**a. Annual number of musculoskeletal injuries.**

Total	
(1). Tactical/Training related:	20
(2). Occupational (ex back pain, carpal tunnel)	40
(3). Sports/Recreation related	40

**b. Annual impact of musculoskeletal injuries:**

1. Annual light duty days (member stayed within the command):	300
2. Annual limited duty days (member moved to another command):	180
3. Annual lost work days	100
4. Annual Outpatient Visits	50
5. Annual Surgical Procedures	10
6. Annual Hospitalizations	0
7. Annual Medical Separations:	0
8. Annual Deaths:	0

**OUTCOMES**

**Most recent annual musculoskeletal injury related data following the institution of your program:**

1. Number of months program was in existence when data was collected:	12
2. Target Population Size	182
3. Outcomes Data:	
a. Annual number of injuries	100
b. Annual light duty days	300
c. Annual limited duty days:	180
d. Annual lost work days:	100
e. Annual Outpatient Visits	50
f. Annual Surgical Procedures	10
g. Annual Hospitalizations	0
h. Annual Medical Separations:	0
i. Annual Deaths:	0

**Recommendation:** No recommendation provided.

**Contact Information**

Flight Surgeon  
VAQ-142  
NAS Whidbey Island  
Air/CNAF

## **Heat Stress Prevention**

USS DEXTROUS (MCM 13)

**Purpose:** Prevention of Heat Stress related Injuries

**Background:** Heat stress is always a major concern when operating in the 5th Fleet AOR/Persian Gulf during the summer, when temperatures can top 120 degrees F.

**Discussion:** To help mitigate the dangers of operating in such a high heat-stress environment, USS Dextrous (MCM 13) ensured that heat-stress surveys were conducted daily or as necessary and reviewed by the chain of command. Water was on station in a cooled space and watch standers were rotated from the high temperature area to the cooled space. They would spend 35 to 45 minutes on station and rotate out to spend at least 15 minutes in the cooled space rehydrating. The entire crew was meticulous about ensuring watch standers adhered to the policy. USS Dextrous (MCM-13) had zero heat-stress casualties during a highly successful deployment.

**Recommendation:** No recommendation provided.

### **Contact Information**

USS Dextrous MCM 13  
AA 09567-1933  
pao@MCM13.navy.mil

## **Injury Prevention Practices**

USS HARRY S. TRUMAN (CVN-75)  
Norfolk, VA

**Purpose:** Preventive measures without a specific program to address musculoskeletal injuries.

**Background:** A separate program does not exist onboard HST to address musculoskeletal injury prevention. Injuries have occurred and responses and preventive measures have been implemented in the absence of a specific “injury prevention and treatment program”. Prevention of musculoskeletal injuries is part of overall safety and all types of injury prevention practices. Safety and injury prevention is an all hands responsibility on HST and includes everyone from the Commanding Officer to the deckplate leaders to the individual Sailors, Marines, and civilians onboard.

**Discussion:** The CVN-75 population size is 5,000 (3,000 ship’s crew, 2,000 air crew) with an approximate 80/20 percent ratio of male/female. The average rank is an E-5 and nearly all Navy rates are present except CB, musicians and submariners.

The Safety Department investigates incidents, tracks & analyzes trends, and provides routine and impromptu training as required and as indicated by current conditions and events.

Annual training and safety stand-downs are conducted to address NAVOSH required topics such as recreational, athletic, and home safety. Safety stand-downs are held as needed to address likely threats to musculoskeletal health based on changing work and weather environments, work demands, and work tempo.

As modes of injuries are identified and documented, and trends are analyzed, appropriate training is conducted to reverse or prevent trends from occurring.

The Physical Therapist and all other medical providers report injuries and the physical therapist provides training and rehabilitation as needed. Rehabilitation often includes having sailors using actual gear from work spaces, such as chocks and chains, that they use on a daily basis to perform their jobs. The location of rehab sessions changes from the clinic setting to the hangar deck or flight deck as needed to ensure real-life work hardening activities and integration back into their respective work environments.

Some examples of injury prevention strategies by deckplate leadership and individuals include, but are not limited to: ensuring safe uncluttered environments; foot-traffic is controlled during movement of equipment, aircraft, and supplies; safety equipment and PPE is present and employed; PMS is current; and qualifications are current (such as forklift driver quals).

**CVN-75 Baseline measurements defining the types and impact of annual injuries on your command.**

**Annual number of musculoskeletal injuries.**

Total	Year: <u>2007</u> <u>2008</u> <u>2009</u> <u>2010</u>			
Occupational (ex back pain, carpal tunnel)	178	159	74	65 ytd
Sports/Recreation related	75	116	65	38 ytd

**Annual impact of musculoskeletal injuries:**

The total Mishaps/Injuries for the year:

<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Jan – Jun2010</u>
652	617	433	220

Total lost work days for the year:

<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Jan – Jun2010</u>
60	125	232	42

Total light duty days for the year:

<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>Jan – Jun2010</u>
1431	1135	1350	788

**Recommendation:** No recommendation provided.

**Contact Information**

Physical Therapist  
 USS Harry S. Truman (CVN-75)  
 Norfolk, VA

## **Injury Prevention Program**

USS JOHN C. STENNIS (CVN 74)  
Bremerton, WA

**Purpose:** To minimize time lost at work due to injury.

**Background:** The program identifies any injuries that require limited duty status immediately in order to be able to send injured member to the care they require and fill their billet with a healthy individual.

**Discussion:** The CVN-74 population size is 5,000 (3,000 ship's crew, 2,000 air crew) with an approximate 80/20 percent ratio of male/female. The average rank is an E-5 and nearly all Navy rates are present except CB, musicians and submariners. Safety, MWR, line commands, primary care, physical therapy, athletic training and health promotion all participated in the implementation of the program. Outlined below is what the program entails.

- Safety Stand Down- Discussion of injury prevention during sports activities.
- School of Ship Proper Lifting Techniques (Command Indoctrination) - Discussion of proper technique using abdominal drawing in maneuver and squatting.
- Health Fair Exhibits- Injury prevention displays and discussion, may provide direct access to physical therapy as needed.
- Sick Call0 Acute and chronic injuries are screened and treated or referred to physical therapy.
- Birth Month Recall Screening- Patients are screened by corpsmen during physical health assessment and patients are referred to physical therapist as needed.
- Physical Therapy Sick Call- Performed during same hours as ship's sick call, patients may directly request evaluation or appointment.
- Physical Therapy Clinic- Direct access and referral.
- Informational Lectures- Given by physical therapist and fit boss for prevention, treatment and healing of primarily sports injuries.
- Fit Boss (Exercise Physiologist) consultation-Patients may be referred or have direct access to counseling for exercise prescription to prevent or treat injuries. Fit boss may refer patients to physical therapist as well.

### **CVN-74 Baseline measurements defining the types and impact of annual injuries on your command.**

#### **Annual number of musculoskeletal injuries.**

Total	Year: <b><u>2007</u></b> <b><u>2008</u></b> <b><u>2009</u></b> <b><u>2010</u></b>			
Occupational (ex back pain, carpal tunnel)	178	159	74	65 ytd
Sports/Recreation related	75	116	65	38 ytd

**Recommendation:** No recommendation provided.

**Contact Information**

Physical Therapist  
USS John C. Stennis (CVN-74)  
Bremerton, WA

## **Keep it Simple Sports Medicine (KISSM)**

MARINE CORPS BASES OKINAWA & CAMP SMEDLEY D. BUTLER  
Okinawa, Japan

**Purpose:** To treat musculoskeletal conditions.

**Background:** Active duty Marines and Sailors assigned to operational and shore-based commands on Okinawa have a need for proper and timely evaluation and treatment of musculoskeletal injuries.

**Discussion:** Protocols implemented for SMART patients for treating common musculoskeletal conditions including back pain/S.I. joint dysfunction, knee pain/iliotibial band syndrome, knee pain/ patellofemoral pain syndrome (PFPS), shoulder (impingement), shoulder AC joint, ankle and medial tibial stress syndrome (See below).

Implementation of the KISSM program has resulted in zero admin' seps and only 5 PEBs on Okinawa over a four year period for SMART patients.

**Recommendation:** No recommendation provided.

### **Contact Information**

Head, Sports Medicine Department  
Naval Hospital  
Camp Lejeune, NC

## SMART Clinic

### Back Pain / S.I. Joint Dysfunction Rehabilitation Program



#### **Hamstring Stretch (Both Legs)**

Hold for: 30 Seconds or until feel it  
Repeat: 3 Sets/ 3x Daily



#### **Bicycle Kicks**

Do: 30 Straight  
Repeat: 3 Sets / 3x Daily  
Note: Hold Abs tight, to keep spine flat



#### **Oblique Bicycle Kicks**

Do: 15 Straight or until you feel it  
Repeat: 3 Sets/ 3x Daily  
Note: Hold Abs tight, to keep spine flat



#### **45° Glute Medius W/Resist (Both Legs)**

Do: 15-20 or until feel you feel it  
Repeat: 3 Sets / 3x Daily

Note: For best results warm up prior to exercising for a minimum of 5 mins, ice for 20 mins, no more than once every 2 hours & after exercise.

## Knee Pain / Iliotibial Band Syndrome Rehabilitation Program



### **Iliotibial band stretch**

Hold for: 30 seconds

Repeat: 3 Sets/ 3x Daily



### **45° Glute Medius W/Resist (Both Legs)**

Do: 15-20 or until feel you feel it

Repeat: 3 Sets / 3x Daily

Note: For best results warm up prior to exercising for a minimum of 5 mins, ice for 20 mins, no more than once every 2 hours & after exercise.

## Knee Pain / PFPS / Plica Syndrome Rehabilitation Program



### **Hamstring Stretch (Both Legs)**

Hold for: 30 seconds

Repeat: 3 Sets / 3x Daily



### **Quad Stretch (Both Legs)**

Hold for: 30 seconds

Repeat: 3 Sets / 3x Daily



### **Wall Sits**

Hold for: 60 seconds

Repeat: 3 Sets / 3x Daily

Note: For best results warm up prior to exercising for a minimum of 5 mins, ice for 20 mins, no more than once every 2 hours & after exercise.

## Shoulder (Impingement) Rehabilitation Program



### External Rotation w/weight

Do: 10 - 15 Reps

Repeat: 3 Sets / 3x Daily

Note: With light weight 2-3lbs.



### Internal Rotation w/weight

Do: 10 - 15 Reps

Repeat: 3 Sets / 3x Daily

Note: With light weight 2-3lbs.



### 45°-45° Abduction w/Theraband

Do: 10 - 15 Reps

Repeat: 3 Sets / 3x Daily

Note: Start against body and  
45° from center and floor



### Scapula Squeezes

Hold for: 8 seconds

Repeat: 4-5 Times / 3 Sets / 3x Daily

Note: For best results warm up prior to exercising for a minimum of 5 mins, ice for 20 mins, no more than once every 2 hours & after exercise.

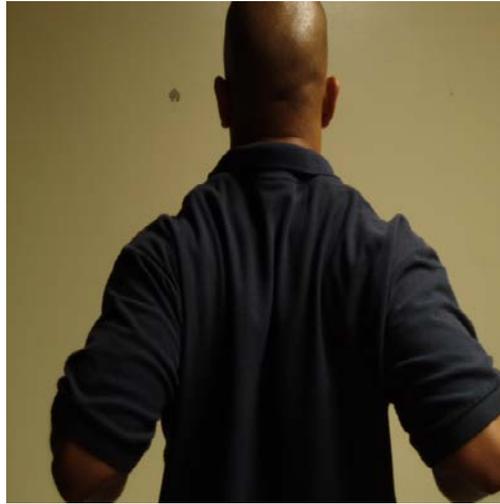
## Shoulder (AC Joint) Rehabilitation Program



### **Corner Stretch**

Hold for: 30 seconds

Repeat: 3 Sets / 3x Daily



### **Scapula Squeezes**

Hold for: 8 seconds

Repeat: 4-5 Times / 3 Sets / 3x Daily

Note: For best results warm up prior to exercising for a minimum of 5 mins, ice for 20 mins, no more than once every 2 hours & after exercise.

## Ankle Rehabilitation Program



### **Gastroc Stretch (Both Legs)**

Hold for: 30 seconds

Repeat: 3 Sets / 3x Daily



### **Soleus Stretch (Both Legs)**

Hold for: 30 seconds

Repeat: 3 Sets / 3x Daily



### **Balance Exercise (Both Legs)**

Hold for: 30 seconds

Repeat: 3 Sets / 3x Daily



### **Range of Motion (Both Legs)**

Do: 15-20

Repeat: 3 Sets / 3x Daily

Note: For best results warm up prior to exercising for a minimum of 5 mins, ice for 20 mins, no more than once every 2 hours & after exercise.

## Medical Tibial Stress Syndrome Rehabilitation Program



### **Gastroc Stretch (Both Legs)**

Hold for: 30 seconds

Repeat: 3 Sets / 3x Daily



### **Soleus Stretch (Both Legs)**

Hold for: 30 seconds

Repeat: 3 Set / 3x Daily



### **Toe Ups (Both Legs)**

Do: 15-20 or until you feel it

Repeat: 3 Sets / 3x Daily



### **Calf Raises**

Do: 15-20 or until you feel it

Repeat: 3 Set / 3x Daily

Note: For best results warm up prior to exercising for a minimum of 5 mins, ice for 20 mins, no more than once every 2 hours & after exercise.

## **Navy Fleet Physical Therapy Program**

USS NIMITZ (CVN 68)

**Purpose:** Musculoskeletal Injury Prevention.

**Background:** An LT serves as both the operational platform's Physical Therapist and Health promotion program manager. This person developed and provided musculoskeletal injury clinical education, patient education and provider handouts as well as corpsmen training aboard the USS Nimitz.

Training has been provided directly related to musculoskeletal injury prevention such as Back Injury Prevention, Ergonomics (lifting /carrying), Safe Exercise Programming and Tobacco Cessation.

**Discussion:** Effective Corpsman training is timely but has shown to be a golden asset to the program. With regards to safe exercise programming, when need be the Physical Therapist have been the FITBOSS which has also been a tremendous benefit to the program. Furthermore, Tobacco Cessation success rate has gone from 6% to 43% with implementation of educational materials.

In medical, accidents and injuries are tracked formally. Any patient that is seen in medical with a musculoskeletal complaint that is work related or due to an accident/injury fills out a form to detail the event. Reports are reviewed by the Physical Therapy tech and routed through our department admin officer up the chain of command every month. The ship has a safety department that also reviews all accident and injury reports.

In the PT clinic, the most significant injury trends that were seen during deployment were lifting injuries with the aviation ordnance Sailors (about 10% of the ship's population but almost 25% of the physical therapy population). Also seen was increased neck pain in the pilots with the introduction of a new helmet and increased flight hours while in the Gulf. The air crew that did loading/offloading of equipment in the C-2s had much greater incidence of back injuries than with other aircraft. The Physical Therapy tech teaches a class on healthy back/lifting techniques to all incoming Sailors at command indoc which is held 2-4x/month.

**Recommendation:** No recommendation provided.

### **Contact Information**

Physical Therapist and HP Coordinator  
USS NIMITZ (CVN 68)

## **Navy Operational Fitness and Fueling System (NOFFS) as Rehab Recommendation**

NH Pensacola, NBHC NATTC  
Pensacola, FL

**Purpose:** In order to reduce lost training days and improve boards, NH Pensacola, NBHC NATTC has implemented Navy Operational Fitness and Fueling Series as part of our rehab recommendations.

**Background:** The goal is to use a common language with the students. Air Crew school has started NOFFS in their training. Other schools are starting to get exposed to the concepts and exercises. Therefore, when they come to SMART, the staff will not only perform a musculoskeletal evaluation for their injury but recommend exercises from NOFFS to target Pillar strength etc.

**Discussion:** The population size is approximately 7,000-9,000 students with an average rank of E-2. Occupations/Rates include Marine and Naval Aviation; aviation rates (from air traffic control to mechs to avionics to ordnance); air crew and rescue swimmers. The total onetime cost of implementation was \$1500 dollars for NOFFS instructor by the MWR could then train the clinic for free.

Furthermore, the corpsman in the clinic is being trained to identify common compensations. Thus they get a private coaching session to review form as it applies to their musculoskeletal dysfunction. Physical Therapy as well as Chiropractic is using common protocols and exercises so that all areas involved are utilizing the same practices and providing the same information.

NH Pensacola is working to acquiring Outcomes Assessment Tool software to use in Physical Therapy, Chiropractic and SMART to determine effectiveness of the new protocols. In addition, Pensacola is working to coordinate with the Marine ATCs to establish an overlap of exercises, again to be cohesive in utilization of the same practices.

**Recommendation:** No recommendation provided.

### **Contact Information**

NH Pensacola, NBHC NATTC

## **Predictions of Response to Intra-articular Injections of Hyaluronic Acid for Knee Osteoarthritis**

NAVAL HOSPITAL PORTSMOUTH  
Portsmouth, VA

**Purpose:** The study is being done to address knee pain and osteoarthritis (OA) in the military. It examines the use of Hyaluronic Acid (HA) Injections for the knee to reduce and/or elimination knee pain and/or osteoarthritis (OA).

**Background:** Knee pain and OA in the military are major causes of limited duty and separation. The use of Hyaluronic Acid (HA) Injections for the knee has been shown to improve pain in up to 80% of knees but its role in OA is unclear.

**Discussion:** The study aims to identify patient and treatment factors that predict optimal response, develop mathematical and statistical models to predict individual patient response, devise a clinical algorithm for HA use and evaluate Magnetic Resonance Imaging (MRI) before and after HA.

The study is a prospective, blinded, randomized clinical trial which utilizes two HA products. The projected outcomes of the study included a predictive model for individual patients and to determine most benefit to the patient.

Study protocol consists of the utilization of 500 volunteers, pre- and post-testing and evaluation during tx. Evaluation during tx consisted of patient/physician derived outcomes, subjective/objective outcomes including pain, functional level, range of motion and strength as well as gait.

Inclusion criteria for patients consisted of symptomatic OA in stable knee, symptoms for more than three months and Radiographic changes in X-ray and/or MRI. Exclusion criteria consisted of infection, crystalline arthropathy, allergy, candidate for surgery and/or prior injections.

The studies outcome variable are imaging which included X-ray & MRI pre-HA and MRI (cartigram) at 6 and 12 months.

Traditional statistics and linear descriptive analysis will be utilized. The traditional statistical primary outcome measure was WOMAC and the secondary was an improvement greater than or equal to 20% at 6 months from the last injection in WOMAC Pain Subscale. The linear descriptive analysis will repeat measures of scores and treat each patient as an entity in the group classification (knee OA) for discriminant analysis.

The study will address a gap in clinical practice and the literature as well as develops a clinical predictive model comprised of the individual patient and a linear descriptive analysis.

**Recommendation:** No recommendation provided.

### **Contact Information**

Naval Hospital Portsmouth  
Portsmouth, VA

## **Primary Injury Prevention Initiatives at Recruit Training Command**

NHC GREAT LAKES, NAVAL STATION GREAT LAKES  
Great Lakes, IL

**Purpose:** To reduce the stress fracture and musculoskeletal injury rates in recruits going through initial training at the Recruit Training Command, Naval Station Great Lakes.

**Background:** A concerted, multi-factorial effort was made starting in 2005 to reduce the stress fracture and musculoskeletal injury rates in recruits going through initial training at the Recruit Training Command, Naval Station Great Lakes. The highly effective treatment program was established to return injured recruits, especially those with stress fractures, back to training as rapidly as safely possible and to prevent attrition from boot camp for musculoskeletal injuries.

The commands/groups who participated in the implementation of this program include line Commands, Primary Care (Sports Medicine-SMART Clinic), Physical Therapy and Athletic Trainer. The average program size is 40,000 recruits per year with an average rank of SR.

**Discussion:** The "BASES" program encompasses four phases which progressively rehabilitates recruits from crutches all the way to passing the run portion of the PFA. The program has steadily decreased the number of stress fractures from 2004-2008 (see Figure 1). The estimated savings is well over \$500,000 per year.

RTC has implemented a number of other effective injury prevention initiatives (see below) over the past several years.

Initiatives:

- Climate controlled physical training facilities
- Padded running tracks and physical training surfaces
- No double-timing during inclement weather
- Decreased marching distances
- Decreased running requirement during Battle Stations 21
- New uniform shoes, boots, and running shoes

Program Initiatives:

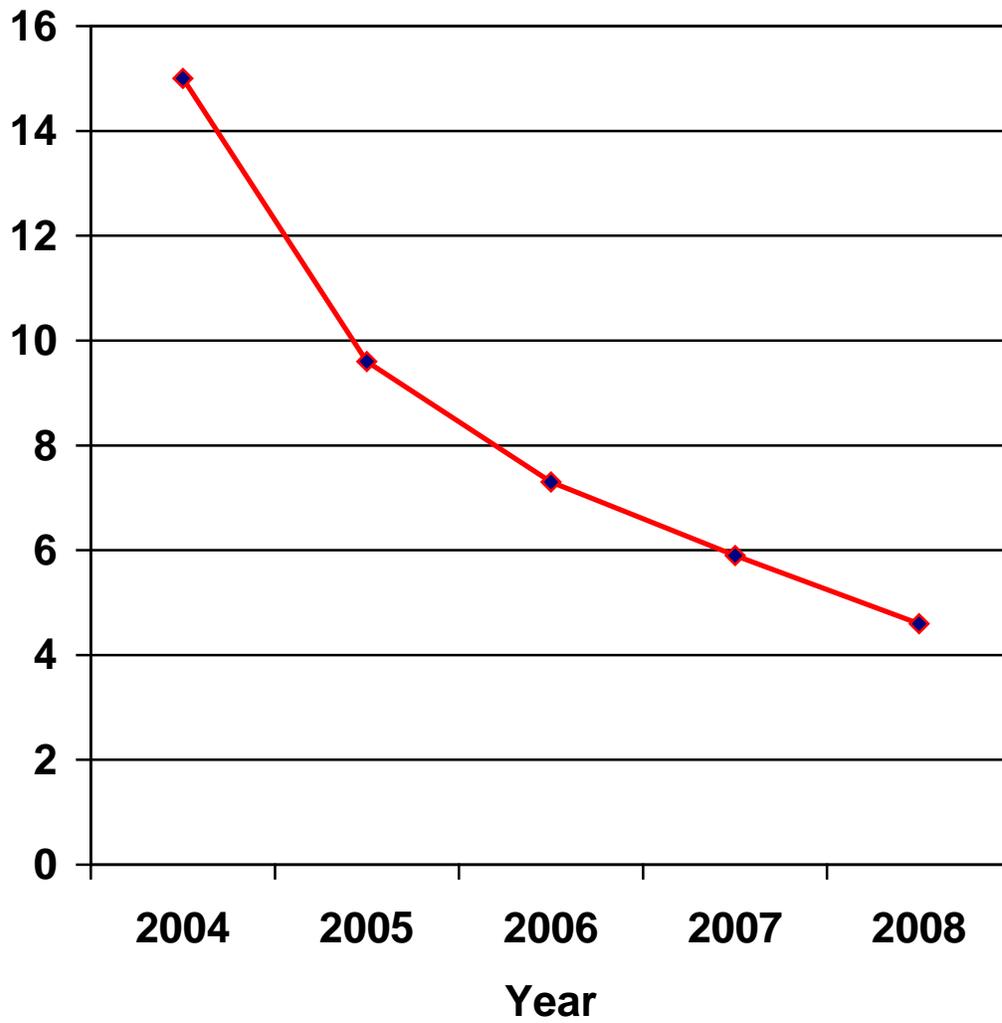
01 Oct 2005: Implemented a new standardized/scientific-based physical training program;

06 Feb 2006: Started issuing running shoes designed to accommodate the three different foot types

09 Jun 2006: Established a new Red Book policy to change Recruit marching order to short to tall (specifically reduced pelvic stress fractures in female recruits).

**FIGURE 1.**

### Stress Fractures Per 1,000 Recruits



**a. Manpower:**

**Military**

<b>Position</b>	<b>Rank</b>	<b>FTE</b>	<b>\$/FTE</b>	<b>Total</b>
Sr Sports Medicine Physician	CAPT	0.5		
PT Technician	HM2	3.0		
Corpsman	HM2	2.0		
Corpsman	HM3	1.0		
Corpsman	HA	2.0		

**Civilians**

<b>Position</b>	<b>Level</b>	<b>FTE</b>	<b>\$/FTE</b>	<b>Total</b>
Sports Medicine Physician	GS-15	0.9		
Orthopedic PA	GS-12	1		
Physician Assistant	GS-12	1		
Podiatrist	GS-12	1		
Physical Therapist	GS-12	1		
Medical Clerk/Receptionist	GS-6	1		

**Recommendation:** No recommendation provided.

**Contact Information**

NHC Great Lakes, Naval Station Great Lakes

## **Safety 8 O'clock Reports**

USS RENTZ (FFG 46)

**Purpose:** Tracking of safety mishaps.

**Background:** Safety eights is submitted daily to the commanding officer with the ships normal 8 o'clock reports.

**Discussion:** While not a requirement to have such a report, this report gives the ship's chain of command a snapshot of the ship's safety climate and readiness. The report includes tracking of injuries. A Sample of a Safety 8 O'clock report can be found at <http://www.safetycenter.navy.mil/>.

**Recommendation:** No recommendation provided.

### **Contact Information**

USS Rentz (FFG 46)  
pao@FFG46.navy.mil

## **Safety Discrepancy Cards**

USS BARRY (DDG 52)

**Purpose:** To reduce the number of mishaps onboard, including Musculoskeletal Injuries.

**Background:** On Barry, the safety officer, assistant safety officer and the DMAA complete a total of five "Safety Discrepancy Cards" per day, handing them out at XO/DH Call the following morning. The departments have 24 hours to correct the discrepancy or enter a JSN. The ship has been doing this for more than two years; barring leave periods and weekends, which means a little more than 2,400 cards. This has resulted in a closer attention to detail when it comes to both the material condition of Barry as well as hazard-abatement efforts.

**Discussion:** Since this program was instituted in late 2005, the number of mishaps onboard dropped by 20 percent in 2006, and 11 percent in 2007. A copy of the safety discrepancy card can be found at <http://www.safetycenter.navy.mil/>.

**Recommendation:** No recommendation provided.

### **Contact Information**

USS Barry (DDG 52)  
pao@ddg52.navy.mil

## **Safety Information and Awareness**

USS PELELIU (LHA-5)

**Purpose:** Safety promotion.

**Background:** One of the important aspects of promoting safety to the members of the command is to find ways to get the information out there. Peleliu's safety department has created an active working relationship with the ship's award-winning Operations Media (OM) division.

**Discussion:** The safety department routinely distributed vital safety information via the command's newsletter, "Pelenews," in a regular column called the "Safety Minute." This year, the safety minute found a counterpart on the ship's closed-circuit site TV news broadcasts. The television version of the Safety Minute routinely brought topics such as electrical safety, heat stress, and ORM to the entire crew and its embarked commands on deployment during the weekly shipboard news reports. The safety department also worked with the OM division to assist in facilitating training for safety stand downs and prior to pulling into port.

**Recommendation:** No recommendation provided.

### **Contact Information**

USS Peleliu (LHA-5)  
(619) 556-4200

## **SMART Action-Impact**

NAVAL HOSPITAL CAMP LEJEUNE  
Jacksonville, NC

**Purpose:** To create a convenient clinical entity that specializes in the non-surgical evaluation and treatment of common musculoskeletal injuries and complaints, the quality of health care delivered is improved.

**Background:** Approximately 30% of primary care visits and 40-80% of “sick-call” visits are for musculoskeletal symptoms. A large number of these patients are subsequently referred for specialty consultation in Orthopedics, Physical Therapy, and Podiatry. However, only a small minority (15%) of the patients referred are determined to require a surgical treatment.

**Discussion:** Camp Lejeune changed from a consult only sports medicine and physical therapy co-existing system to a walk-in sports medicine and reconditioning team (SMART) system. This system combined sports medicine and physical therapy in a walk-in primary care and consultant system. The number of staff remained similar. However, certified athletic trainers replaced a number of Navy PT Techs and Corpsman. The USMC sports medicine and injury prevention (SMIP) ATCs were utilized 150% more in a NCAA or professional sports athletic training room (ATR) relationship with SMART physicians.

**Impact:** \$32,559,040 per year as follows:

Navy and Marine Corps Operational Forces Cost Saved / Avoided Per Year:  
\$29,099,000

Military Health System (MHS) Revenue Generated per Year (300% increased productivity with similar resources over FY08): \$2,885,040

MHS Cost Saved / Avoided Per Year: \$575,000

Throughout 2008-2010 the Sports Medicine-Physical Therapy-Orthopedics-Operational Forces (OpFor)-MCB partnership resulting in synergistically improved health care delivery across the entire musculoskeletal care spectrum was sustained. CO and XO Camp Geiger praised the relationship as “best ever” and “trusted more”.

- (a) Innovative programs and protocols directly involving line leadership and better treatment of musculoskeletal conditions in one year reduced:
  - i. 2nd limited duty boards by 69 from 440 to 371 (-20%)
  - ii. 3rd limited duty boards by 54 from 150 to 94 (-36%)
  - iii. PEBs (attrition) by 149 from 360 to 211 (-40%)
  
- (b) Sustained collaboration with Camp Geiger and SOI CO/XO/Staff, DBC, PT, Sports Med to change the way musculoskeletal care is delivered. Multiple meetings/socialization/CONOPS relationship development were executed. In October 2008, Changed from consult only sports med and branch clinic sick-call as points of care to utilizing USMC ATCs in a front line training room model supported by PRIMARY CARE Sports med.

**Result:**

- (1) Sustained SOI medical attrition decrease from 8/1000 students to 1/1000 student (84% improvement) for effective projection of about 13 more SOI grads per month for a cost savings (\$70K per SOI grad per TECOM) = \$910K per month or \$10.92M per year.
  - (2) Sustained USMC SOI ATC patient volume increased from 200/month before OCT 08 to 500/month (250% increased productivity) after OCT 08. The NHCL Branch clinic visits decreased per DH Geiger BMC in the setting of a 30% increase in SOI student population which represents a 30% decrease in the expected branch clinic workload. Thus, saving/avoiding 1.0 FTE contract PA valued at \$95K per year.
  - (3) Sustained 2009 Medical Rehab' Platoon (MRP) at SOI decrease success (from 175 students in Jan 08 to 40 Students Jan 09 despite 30% more students on board for an effective 82% improvement (saved 185 of the 225 expected MRP for Jan 2009). This reduced the requirement (82%) for multiple SOI SNCOs brought on to MRP initially for the expected surge.
  - (4) Camp Geiger CO praised innovative SMART system accomplishments during brief to Commandant of the Marine Corps during FEB 09 visit to SOI. This praise builds the reputation and trust of Navy Medicine (NHCL) within the USMC. Camp Geiger CO continues praise for innovative SMART system accomplishments.
- (c) Continued involvement with Navy Medicine East (NME), NHCL, and MCB facilities directors and MCCS to develop plans for SMART centers in base Gyms and other new facilities over the next 5 years. NME and MCB committed to millions of dollars in new construction sports med space in multiple facilities across all local bases breaking ground soon with completion expected by 2012.
- (d) Continued championship of developed written proposal and phased plan for 5 full SMART centers serving all AD musculoskeletal needs at Camp Lejeune, New River and Cherry Point over the next 3-5 years. Presented to NME, NHCL PMB, XO called leadership mtg with endorsements given by all. A full SMART enterprise is expected to reduce attrition 80% while reducing NHCL PT and Ortho consults 40% and branch clinic total work load 30% as seen with one similar (OKiSMART) proven primary care/consult SMART system.
- (e) Taught and precepted MLG, Wing, DIV, MARSOC, and USCG medical personnel at SMART Centers, OpFor clinics, OpFor meetings, by phone and email. OpFor physicians even brought their patients to SMART for one-on-one precepting. OpFor expertise improved keeping war fighters in the fight with expected decrease in Ortho, PT and SMART consults. MRI demand is also expected to decrease.
- (g) Trained and mentored PT tech, HM and ATC SMART staff to act as physician extenders and pushed more clerical task to our clerks. Productivity of SMART increased) from Max capability of 14 visits/provider per day to 33 proven max visits per provider per ½ day clinic (470% more production capability). In reality, average patient

visits increased from 9 (Sports physician pre AUG 08) to 20-30+ per day at H-1 (300% greater physician productivity average).

Resulted in:

1. Zero wait (walk-in) now vs. 3+ weeks to get into SMART by consult in the past.
2. Reduction in SMART "recommended admin' separations" ZERO in 18 months.

(h) Sustained partnership with Ortho and PT to re-designate consults "sports med" reduced ortho and PT referrals to the network from "100 PT consults per week" per PT DH pre OCT 08 to 1-2 per week and only for specific reasons now. Resulted in a 750 decrease in civilian PT appointments per month. \$40K per month (\$480K per year) cost avoided for PT only, ortho numbers unknown. Results praised by PT and Ortho DHs (SMART players). Keeps NHCL ortho in the OR. Pre OCT 08 an NHCL orthopedic surgeon had to see 15 clinic patients to get one surgery. The typical non-NHCL Orthopod sees 6 clinic patients to get 1 surgery. A great ortho clinic gets one surgical case every 3 clinic visits. Impact measurement pending but already praised by Ortho.

### **CY 2009 SMART Productivity**

SMART total 46,418 encounters generated 32,056 RVUs valued at about \$2.89M. Two to three physicians (2.1 FTE): 10,095 encounters 12162 RVUs (1.2 RVUs/encounter) valued over \$1.09M. Two to three physical therapists (2.3 FTE): 4665 encounters generated 4869 RVUs (1.04 RVUs/encounter) valued at \$438,210. Two to six certified athletic trainers (ATCs) (3.6 FTE): 26,497 encounters generated 11,335 RVUs (0.43 RVUs/encounter) valued at over \$1M. Four to six PT techs-PT assistants (4.9 FTEs): 5,161 encounters generated 3635 RVUs (0.7 RVU/encounter) valued at \$332,100. The two military sports medicine physicians serve at department head and director levels of responsibility and also teach and take call in the family medicine residency program allowing 0.7 and 0.4 FTE sports medicine physician time respectively. They are the #1 and #2 most productive NHCL physicians in terms of encounters/RVUs per FTE. The SMART department head is the #1 physician in terms of total encounters/RVUs at the command including all military and civilian physicians.

CY 2009 SMART CALCULATIONS from the business office data:

Physicians:	Encounters Value (\$90 per RVU)	FTE (2009total)	RVU avg.	RVU total
RB (GMO) –	499	0.125	1.38	699
EF (USN FP/SM)	4076	0.7	1.41	5747
SB (USN FP/SM)	2214	0.4	1.37	3033
SP (CIV FP/SM)	3245	0.8	0.84	2596
LT D (GMO)	61	0.04	1.43	87
<b>Total</b>	<b>10095</b>	<b>2.1</b>	<b>1.2 calc avg</b>	<b>12162</b>
<b>Physical Therapist:</b>				
MC (USN)	1072	0.6	0.7	750
JF (USN)	1469	0.5	1.4	2056
RG (CIV USA res.)	1135	0.5	1.2	1362
LS (CIV)	989	0.7	0.7	692
<b>Total</b>	<b>4665</b>	<b>2.3</b>	<b>1.04 calc avg</b>	<b>4869</b>
<b>ATC:</b>				
HB	1892	0.4	0.15	284
JC	1756	0.4	0.18	316
WL	11857	1.0	0.6	7114
CR	2253	0.4	0.02	45
BS	5263	0.9	0.6	3158
GM	3484	0.5	0.12	418
<b>Total</b>	<b>26505</b>	<b>3.6</b>	<b>0.43 calc avg</b>	<b>11335</b>
<b>PT Tech and PTA:</b>				
Bur	1085	0.5	0.6	651
Cut	804	0.75	1.1	884
Har	1289	0.75	0.6	773
Jen	459	0.25	0.4	184
Mac	360	0.25	0.74	266
Oma	217	0.75	0.89	193
Per	111	0.25	1.05	117
Tap	570	0.83	0.69	393
Tho	243	0.33	1.03	250
Wal	15	0.08	0.5	15
<b>Total</b>	<b>5153</b>	<b>4.74</b>	<b>0.72 calc avg</b>	<b>3690</b>
<b>GRAND TOTAL</b>	<b>46418</b>	<b>12.74</b>	<b>0.69 calc avg</b>	<b>32056</b>
				<b>\$2,885,040</b>

**Recommendation:** No recommendation provided.

**Contact Information**

Head, Sports Medicine Department  
Naval Hospital  
Camp Lejeune, NC

## **Shuttle Buses in the Shipyard**

USS MESA VERDE (LPD 19)  
Norfolk, Virginia/Deployed

**Purpose:** Shipyard life hazards.

**Background:** The shuttle bus stemmed from recognition of the hazards of shipyard life and the need for PPE. Too many people were walking through the yards, exposed to the hazards of large cranes, forklifts and other construction equipment transiting the shipyard. Added hazards were increased the increased amounts of personnel on the sidewalks during shift change and people who were running because they were late for muster.

**Discussion:** After moving aboard for precomm duty in Pascagoula, Miss., Mesa Verde started running shuttle-bus service through the shipyard. Depending on whether it is a weekday or a weekend, this service operates 20-24 hours a day. The route is about one mile.

To ensure Sailors are as protected as possible, the rides are in addition to the required hardhat and safety glasses. This is vital during the day with numerous moving elements throughout the shipyard as well as at night. Another factor is the recognition that personnel will consume alcohol, and it is important to avoid alcohol-related incidents while returning to the ship.

The shuttle uses duty drivers and motor-pool buses. It required getting a large number of personnel through the AAA Driver Improvement program to qualify as duty drivers.

As of the time Mesa Verde submitted this item, at least 90% of the crew was using the shuttle service. There had been zero mishaps while transiting the yard.

**Recommendation:** No recommendation provided.

### **Contact Information**

USS Mesa Verde (LPD 19)  
Norfolk, Virginia

## **Surface-Contact Tracking (Shipboard)**

USS Ford (FFG-54)

**Purpose:** Provide more accurate recognition and reporting of surface contacts with an unintended benefit of reduced fatigue and lesser risk of repetitive stress injuries.

**Background:** A large, flat-screen display was mounted on the bridge of USS Ford in place of the contact status board and connected to a computer in CIC. It provides more accurate recognition and reporting of surface contacts

**Discussion:** The unintended benefit of this change was reduced fatigue and lesser risk of repetitive stress injuries. Previous to this change, the status board keeper would have to stand in one spot for a lengthy time, often in low light. If traffic density was high, the watch stander might have hand cramps. Lengthy watches sometimes resulted in leg or back cramps. After the change, the watch stander could sit or stand to input data on the computer that would display on the bridge.

**Recommendation:** No recommendation provided.

### **Contact Information**

USS Ford (FFG-54)  
pao@ffg54.navy.mil