

High-Intensity Tactical Training (HITT)

Overview



- **Program Objective:** Improve combat readiness while reducing the likelihood of injury through physical fitness training and nutritional guidelines
- **MTF:** Quantico and 29 Palms
- **Implementation Dates:** Oct 2012 - Present
- **To reach local point of contacts, visit [Military Installations](#)**
- **Total Force Fitness Domains:** Physical, Nutritional, Psychological

Program Description



- Comprehensive combat-specific strength and conditioning that aims to ensure physical and mental preparation for real-time combat situations
- Phased program that breaks training into three distinct periods: pre-deployment, deployment, post-deployment
- Active duty and reservists may use the HITT facility
- At 29 Palms, a simulated combat scenario is also used to test individuals' mental and physical limits

Evidence of Program Effectiveness



- At 29 Palms, reaches approximately **1200 Marines per week**
- **100+ pre-designed workouts** that individuals may complete in pre- or post-deployment, or deployed settings
- **33 HITT centers** across the country; planning for expansion is ongoing
- HITT mobile app increases accessibility of customizable individual and unit PT workouts
- As of mid-September 2014, the HITT **website received over 117,000 visits** and the mobile app has been **downloaded over 16,000 times**
- HITT is endorsed by National Strength and Conditioning Association (NSCA)

Costs and Required Resources



- HITT equipment and facility is funded by year-end funding at the installation-level (no HQ HITT budget)
 - Funding includes HITT locker and PT equipment
- **3 - 5 FTEs** with additional support as needed
- "Train the Trainer" courses are offered at each installation on a quarterly basis

Lessons Learned



- Operating **hours are dependent upon availability of HITT certified trainers**, which limit the use of the facility on trainer availability
- HITT-certification for staff is an extensive training process and Quantico has a **difficult time with retention**. Precautions or changes that would improve staff retention, especially with high-cost training, would greatly improve the HITT program

HITT Resources & Evidence of Effectiveness

HITT Basics

The HITT program is based on the following principles:

- Minimize risk for injury
- Increase performance levels that support combat specific tasks
- Build strength, optimize mobility and increase speed

Incorporates 5 unified components related to combat performance enhancement:

1. Movement Prep
2. Strength and Power
3. Speed, Agility and Endurance
4. Core Stability and Flexibility
5. Recovery and Mobility



Quantitative Evidence

- Reaches approximately **1,200 Marines per week** at 29 Palms
- As of mid-September 2014,
 - ✓ the HITT website received **over 117,000 visits** and
 - ✓ the mobile app has been **downloaded over 16,000 times**

Qualitative Evidence

I'm almost 40 years old, and I'm in some of the best shape I've been in in a long time. The HITT program really helped get me there."

"Participating Marines become more holistically capable in terms of their human performance capabilities (more agile, mobile, and powerful). After engaging the HITT program, Marines really start to look like tactical or warrior athletes."

Aquatic Maximum Power Intensity Training (AMP-IT)

Overview



- **Program Objective:** Aquatics based fitness alternative for individuals, providing a challenging but low-impact alternative to land based physical training HITT or PT
- **MTF:** Quantico and 29 Palms
- **Implementation Dates:** July 2013 - Present
- **To reach local point of contacts, visit Military Installations _____**
- **Total Force Fitness Domains:** Physical, Nutritional, Psychological

Program Description



- Provides a challenging pool workout developed from the Army Wounded Warrior Aquatics Exercise Program
- Instructors intertwine the components of Marine Total Fitness (physical, mental, social), within an environment conducive to the reconditioning of injuries, ensuring a rapid recovery and a return to full duty
- Originated from need to address musculoskeletal (MSK) problems that had been plaguing Marines (2013: 5,000 Marines with MSK issues, \$9M cost)

Evidence of Program Effectiveness



- AMP-IT is in place at **15 installations year-round** (dependent upon availability of pool), but currently operates at **41 pools seasonally**
- **Mitigates MSK and overuse injuries**, therefore improving Marine readiness and resilience, and allows Marines with injuries or limited duty/BCP to remain physically fit
- Over **300 Marine trainers** and **120 Marine Corps civilians** across the Marine Corps can train other unit leaders to conduct the training or conduct a unit PT session
- Several academic studies document benefits of aquatic-based exercise, including **2 mile land run time can be maintained or slightly improved** after 6 weeks of under water running

Costs and Required Resources



- Part-time of 1-2 instructors (can be HITT staff or aquatics and fitness staff trained in AMP-IT)
- \$150K for specialized equipment for 3 years
- Pool availability (e.g. at Quantico, classes held M/F 11AM- noon, and T/Th 6- 7AM)

Lessons Learned



- Important to **provide training to broaden staff proficiency** as the pool is a great resource, but only if Marine Unit leaders are able to provide their Marines with a comprehensive, appropriate alternative to PT; need to **ensure command buy-in and educate leaders** on the benefits of aquatics training
- Necessary to **expand staff competency** to ensure leaders have a strong and broad understanding of modifications necessary for a variety of injuries
- **Integration with HITT, PT, or similar training is important** so that individuals who are injured can continue to maintain a level of physical conditioning and others have an opportunity for alternative training/using different muscles
- Program **dependent upon availability of a pool** (some installations do not have year-round access; seasonality makes it difficult)

AMP-IT Resources & Evidence of Effectiveness

Increased Participation and Program Success

Popularity of AMP-IT has grown significantly at both Quantico and 29 Palms

- From FY12 to FY13, there was a **3800% increase** in the number of AMP-IT participants (classes offered by MCCS)

FY12: 210 participants

FY13: 8,054 participants

“AMP-IT will benefit and change the health and wellness and readiness of the Marine Corps”

– Drill Instructor¹

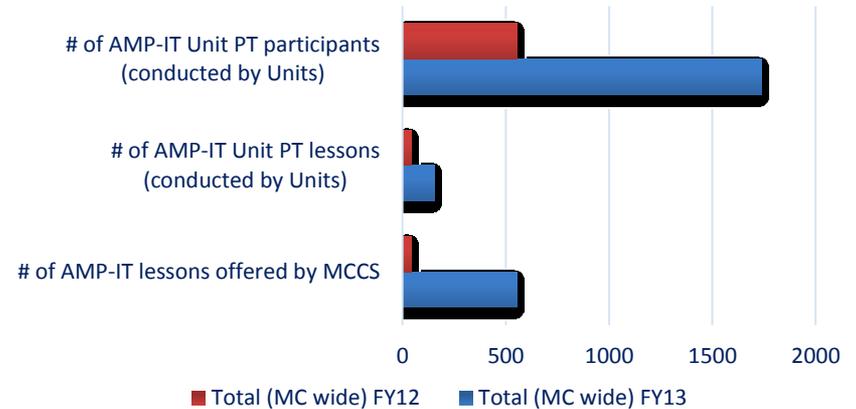
“With AMP-IT, as a Marine Corps we can excel and keep our Marines Fit regardless of physical abilities”

– US Marine²

“The AMP-IT program was one of the hardest workouts with the best benefits I have completed in a long time.”

– US Marine¹

Growth of AMP-IT Participation Across USMC (FY12 vs. FY13)



Value of Water Based Rehabilitation

- A **2 mile land run time can be maintained or slightly improved** after 6 weeks of under water running³
- In highly fit individuals, **water running equals dry land running in its effect on maintenance of maximum VO2** when training intensities and frequencies are matched for training periods up to 6 weeks⁴
- Aquatic cross-training can **sustain or build aerobic fitness with reduced joint loading, decreased muscle soreness and improved performance**⁴
- Deep-water running is **an effective endurance training technique** when performed at a sufficient intensity for a sufficient period⁵
- For elite athletes in early-phase recovery from acute lower extremity ligament injuries, **aquatic exercise contributed to more rapid improvement** than solely land-based exercise⁶
- Individuals engaging in deep-water running show **improvement in anaerobic measures and in upper**

body strength, in addition to a reduction in spinal loading⁷

¹ Marine Corps' AMP-IT Program Buoy Training

² Quote provided to AMP-IT Lead

³ Deep water running: an effective non-weightbearing exercise for the maintenance of land-based running performance

⁴ Aquatic therapy: scientific foundations and clinical rehabilitation applications

⁵ The intensity of exercise in deep-water running

⁶ Aquatic Versus Land-based Exercises as Early Functional Rehabilitation for Elite Athletes with Acute Lower Extremity Ligament Injury

⁷ The physiology of deep-water running

Course Overview

- Classes typically run about an hour and may include:
 - Warm-up
 - Interval running for about 30 minutes (30 second sprints with 30 second rest to 5 minute long runs)
 - Deep water cadence using suspension belts to keep water at chest-level
 - Shallow-end muscle strength and endurance using resistance equipment (upper and lower extremity)(four upper-body and four lower-body exercises at a pace set by each individual)
 - Cool down and stretching
- Classes also include agility and plyometrics and group challenges to support unit cohesion