FMS in the Occupational and Tactical Settings: Ideas for Group Training

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Orange County Fire Authority

2013 FUNCTIONAL MOVEMENT SUMMIT

Fitness Doesn't = Injury Prevention

ACE Peer Fitness Trainer - March 2003
Athletes Performance Firefighter Mentorship - January 2004
Crossfit Level 1and 2 - January 2005
Chek Level 1
Crossfit Olympic Lifting
Athletes Performance Mentorship 1
RKC
USAW Performance Coach
NSCA Conference
CSCS
FMS - January 2006
Athletes Performance Mentorship 2
CK-FMS
Athletes Performance Mentorship 3
RKC Level 2
Athletes Performance Mentorship 4
TRX
TRX RIP Trainer
Crossfit Strongman
Crossfit Mobility
TRX Sports Medicine
Egoscue Certification

What is a Tactical Athlete?

Tactical Athletes put themselves in harms way to assist and protect others in the course of their jobs, duties, or profession.

What is an Occupational Athlete?

Occupational Athletes use their bodies in the course of their daily duties, job, or profession.

At what level of performance do your athletes need to operate?

What do you want your training program produce?

80% of our team at 100% capacity 80% of the time?

90% of our team at 90% capacity 90% of the time?

100% of our team at 80% capacity 100% of the time

Tactical Decision Making

Risk-What are the risks associated with the various options available to you? Given the nature of the mission, are the risks acceptable and manageable? Is the risk worth the benefit? In general, the default is the lowest risk option that meets the needs of the mission. Liability risks are also part of this area

Need-What are the needs of the mission/situation that you are in? Why are you there? Is it an arrest, public safety issue, warrant service, military exercise, prisoner snatch, drug raid, etc.? What needs to be accomplished?

Time-Is time on your side or working against you? In general, the shorter the time available to you to accomplish the mission, the higher the risk factors on the available options left.

Resources Available-What resources can you access during the mission/situation with the time available to you?

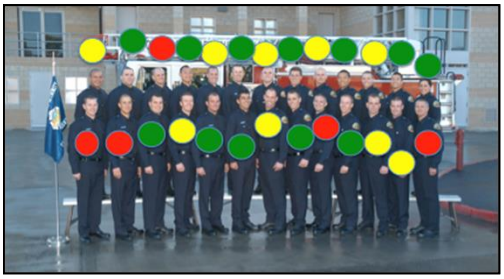
Decision-Needs of the mission, available options, associated risks, resources available in the time constraints and is time working for you or against you?

Risk vs. Need ÷ Time + Resources Available = Decision *

Working with any athlete is about <u>Resource Allocation</u> and <u>Risk Management!</u>

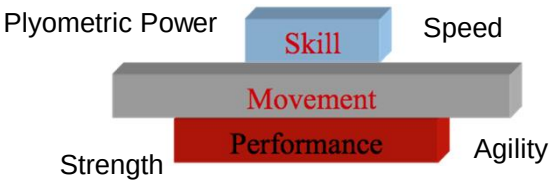
The earlier we can identify who is at risk, the better it is for everyone!

Who is at risk for injury?



Typical Performance and Conditioning

The Dysfunctional Performance Pyramid



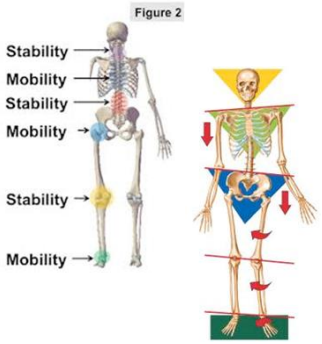
We Need to Rebuild the Pyramid - How?

Bring FUNCTIONAL MOVEMENT to the masses using a simple system of screening, evaluation, and data analysis.

- to target movement dysfunction by restoring functional movement patterns
- to minimize work related injuries that could adversely impact the business, organization, and individual.

The Kinetic Chain

Joint	Function
Cervical	Mobile
Shoulders	Stable
T-Spine	Mobile
Lumbar Spine	Stable
Hip	Mobile
Knee	Stable
Ankle	Mobile
Foot	Stable

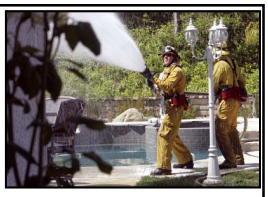


Tactical Athletes: Looking at injuries from a different perspective

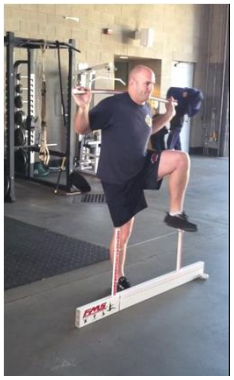
FIRE

POLICE

MILITARY



FIRE

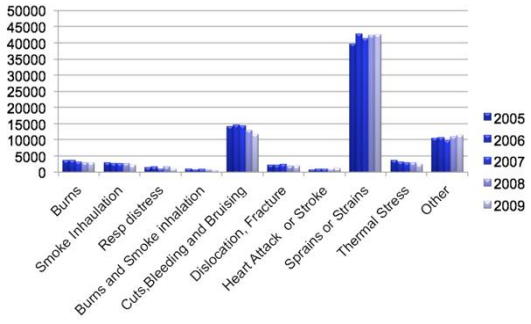


Cost of Firefighter Injuries

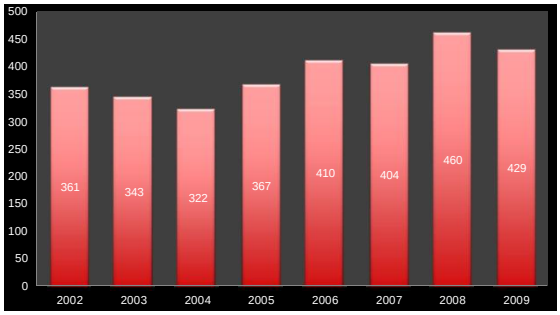
In 2002, the National Institute of Standards and Technology (NIST) released a study* that estimated the cost of addressing firefighter injuries and efforts to prevent them are between **$2.8 billion and $7.8 billion** per year.

(Current costs estimated to be much higher.)

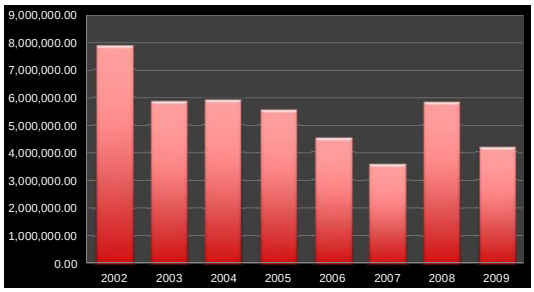
Types of Injuries



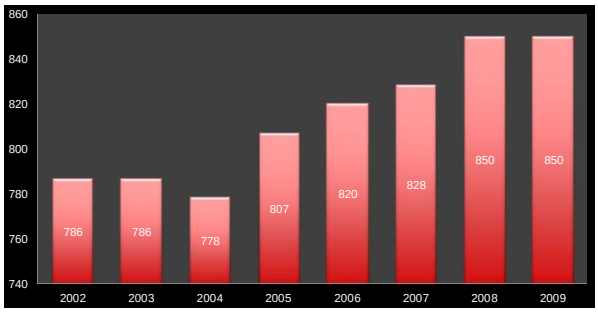
Number of FF Injuries



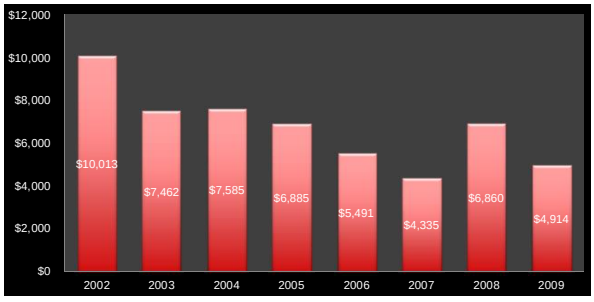
Overall Workers Comp Costs



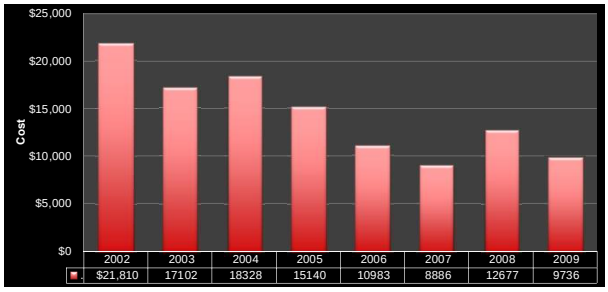
Total Number of Employees



Injury Costs Per Employee

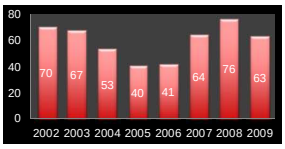


Cost Per Injury

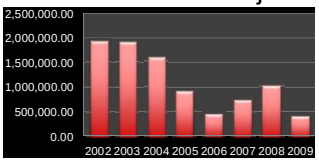


Back Injuries

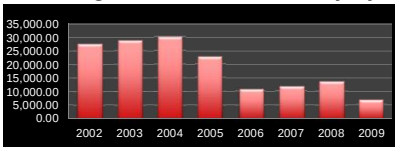
Number of Back Injuries



Total Cost of Back Injuries

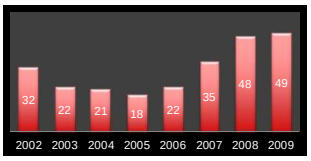


Average Cost Per Back Injury

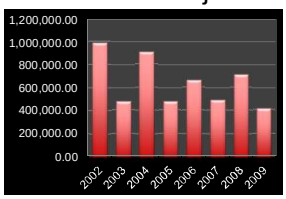


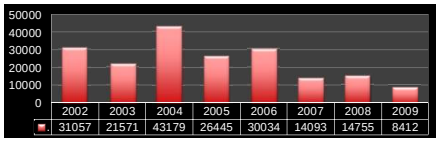
Shoulder Injuries

Total Number of Injuries



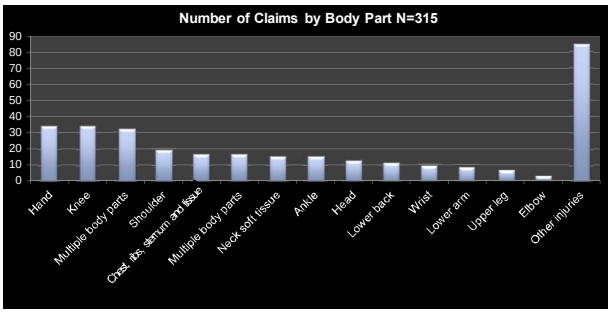
Total Cost of injuries



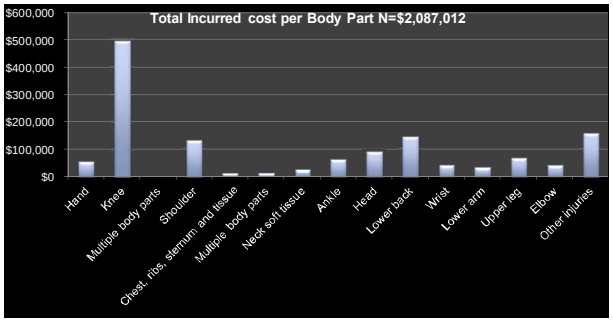


Police

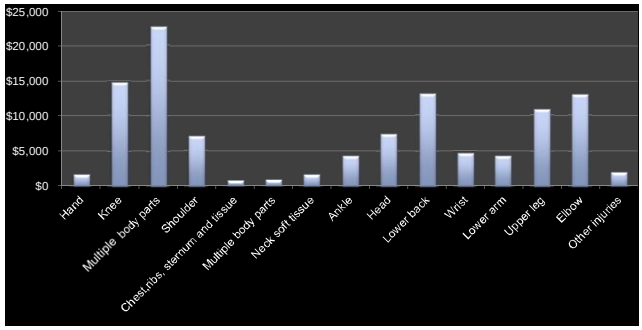
New Mexico Police Department Data



Cost Per Body Part



Cost Per Claim



Military

Musculoskeletal Injuries

1st leading cause of MEDEVACs 2002-2012

2nd leading cause of hospitalization

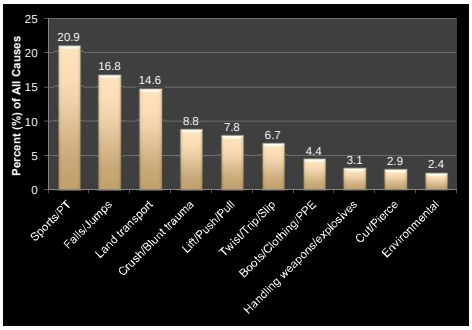
10 million limited duty days

$548 million in health care cost

73% of all VA disability cases are musculoskeletal

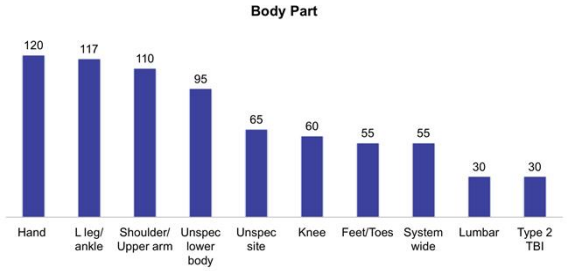
Leading Causes of Deployment Non-Battle Injuries

Army OIF Medical Evacuations, 2003-2008



70,855 Injuries

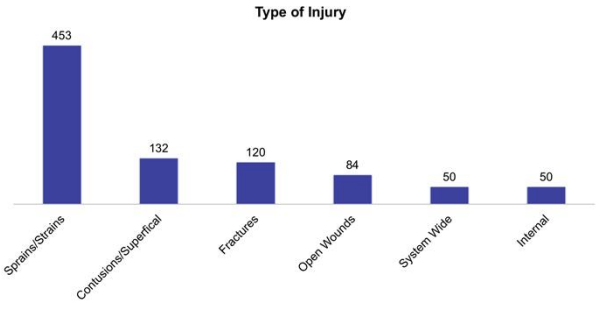
Oct. 1, 2010 – Sept. 30, 2011
(Active Duty Marines, Excluding Recruits)



Injury Rates in Active Duty US Marines FY 2011,Navy and Marine Corps Public Health Center, *EPIData Center Department Report*

Types of Injuries

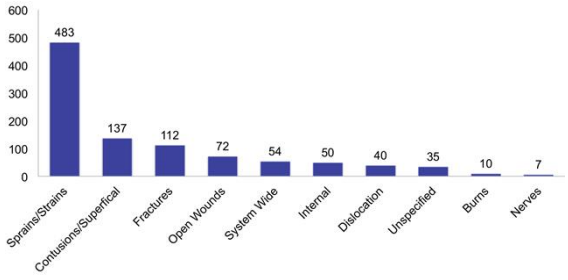
N=70,083



Injury Rates per 1000 Active Duty US Marines FY 2011,Navy and Marine Corps Public Health Center, *EPIData Center Department Report*

Top Ten Outpatient Injury Types

N=65,974



Injury Rates in Active Duty US Marines FY 2011,Navy and Marine Corps Public Health Center, *EPIData Center Department Report*

USACHPPM Top 10 Injury Prevention Priorities

Rank	Injury Problem	Prioritization Score
1	**Physical Training**	34.0
2	Parachuting	31.8
3	Falls	30.6
4	**Athletic Sports**	28.4
5	Privately-owned vehicle accidents	27.2
6	Military vehicle accidents	26.2
7	Guns/explosives handling	26.2
8	Slip/twist/turn (near fall)	24.6
9	Tools/machinery	21.0
10	Non-traffic vehicle accidents	19.4

Results of a prioritization process conducted by Army members of the DoD Health Affairs Military Injury Prevention Priorities Working Group, 2006

Military Injuries

Injuries in general have a greater impact on the health and readiness of the US military than any other category of medical complaint, and **training injuries treated on an outpatient basis may have the biggest single impact on readiness.**

50% of Army Medical Examination Board reviews of personnel assigned to an Army infantry division in were directly related to injury.

Musculoskeletal Injuries in the Military Training Environment,DAVID N. COWAN, PHD, MPH; BRUCE H. JONES, MD, MPH; AND RICHARD A. SHAFFER, PHD, MPH

Military Injuries

THE MOST COMMON INJURIES AMONG MEN AND WOMEN IN THE SAME ARMY BASIC COMBAT TRAINING PROGRAM

Rank Injury	Among Men	Among Women
One	Tendinitis	Muscle Strain
Two	Sprain	Stress Fracture
Three	Sprain	Sprain
Four	Muscle Strain	Tendinitis
Five	Stress Fracture	Overuse Knee

Military Injuries

Unintentional injuries lead all other medical conditions for number of medical encounters, individuals affected, and hospital bed days.

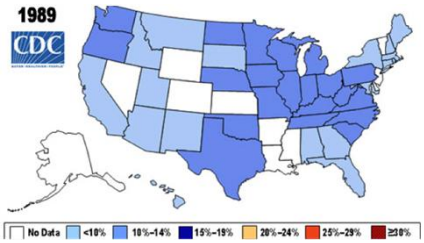
*The top ten injuries resulted in an estimated **25 million days of limited duty.**

***Injury-related **musculoskeletal** conditions were a leading contributor to days of limited duty.

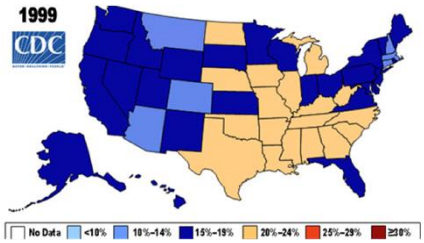
***Sports and physical training were the leading cause**, followed by falls.

A Process to Identify Military Injury Prevention Priorities Based on Injury Type and Limited Duty Days,Bruce A. Ruscio, DrPH, Bruce H. Jones, MD, MPH, Steven H. Bullock, DPT, SCS, MA, ATC, Bruce R. Burnham, DVM, MPH, Michelle Canham-Chervak, PhD, MPH, Christopher P. Rennix, ScD, MS, CIH, Timothy S. Wells, DVM, PhD, MPH, Jack W. Smith, MD, MMM

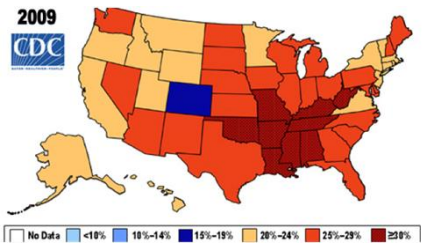
Generational Data Obesity Trends



Generational Data Obesity Trends



Our New Athletes



Movement capabilities have changed in all populations

Tactical, Occupational, Performance

Are your athletes ready and capable of meeting the daily demands of their role?

Total Workers' Compensation payments for injured US workers in 2007 = $55.4 billion

($27.2 billion for medical care,$27.3 billion in wage replacement benefits)

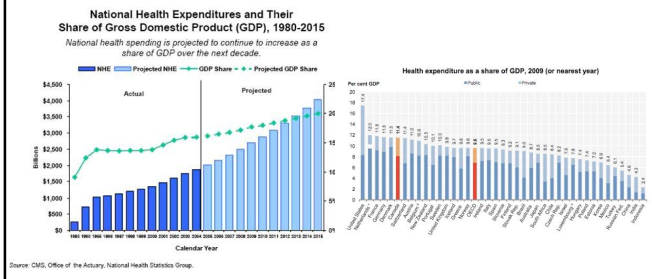
Employers paid $85 billion for workers' compensation in 2007 - an average of 2.28% of their payrolls.

The Long Term Costs of Injured Employees

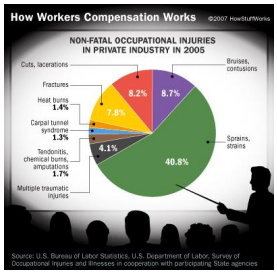
Unknown & unfunded short and long-term liabilities

- Increased medical benefit utilization
- Increased medical premiums
- Increased Workersô Compensation costs (if self insured, reserves need to increase)
- Increased retirement costs
- Lost productivity and compromised readiness
- Filling vacated positions

Medical Costs



Long Term Workers' Compensation



Medical Utilization Costs

- Percentage of premium that is used towards the payment of medical benefits
- Medical care costs are usually 60%-70% (trend over three year period)
- The more utilization is over 60%-70%, the greater the increase in premiums.

Keep insurance use down with targeted MOVEMENT systems to stabilize premium increases.

Employee Retention Costs

1. Recruitment costs
2. Initial training costs
3. Ongoing training costs

What is the return on investment of above costs if an employee gets injured?

What if the injury is off-duty? Still plenty of associated costs.

What if injury is on-duty? Even more costs.

Who will take their place and at what cost?

Unfunded Liabilities

What are the long term costs of an injured employee?

The younger an employee is who gets injured early in their career, the longer they are a liability.

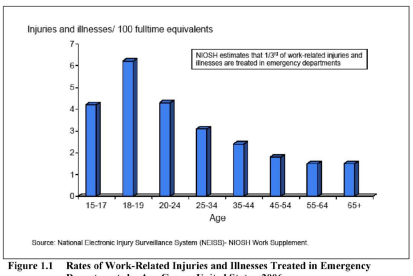
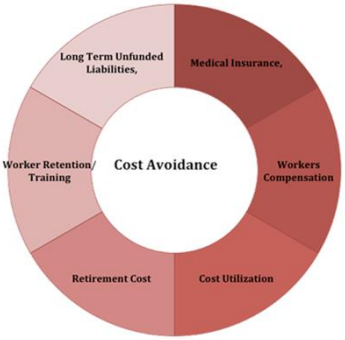


Figure 1.1 Rates of Work-Related Injuries and Illnesses Treated in Emergency Departments by Age Group, United States, 2006

Employer / Employee Costs



Do you think we need an injury prevention **program?**

OR

Do you think we need an injury prevention **system?**

We have a system!

FMS Functional Movement Systems FunctionalMovement.com

Y Balance Test www.Ybalancetest.com

SFMA Selective Functional Movement Assessment

HOW

do we fix the problem?

What Does Our System Consist of?

Evaluation

Individual and Group Screening

Ongoing Data Collection: Are we asking the right questions or are we assuming?

Risk Identification and Stratification: Traditional safety programs are process focused, we are people focused

What Does Our System Consist of?

Targeted Risk Management: Are the athletes ready for and capable of doing the job?

- Relevant Data and Trend Analyses
- Establishing movement profiles
- Targeted movement programming
- Continual Reevaluation and Updates
- Continuing Education and Support

Group Screening

A large amount of people to screen within an allotted time.

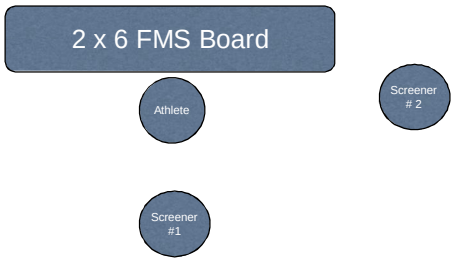
Itôs all about the set up!

- Familiarization
- Measurements
- Rotations
- Time Management

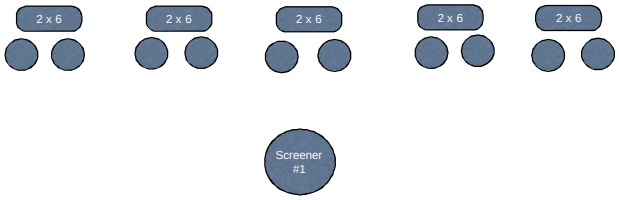
FMS MOBILE
NOW AVAILABLE!
DOWNLOAD FROM YOUR APP STORE TODAY

Group Screening In Action

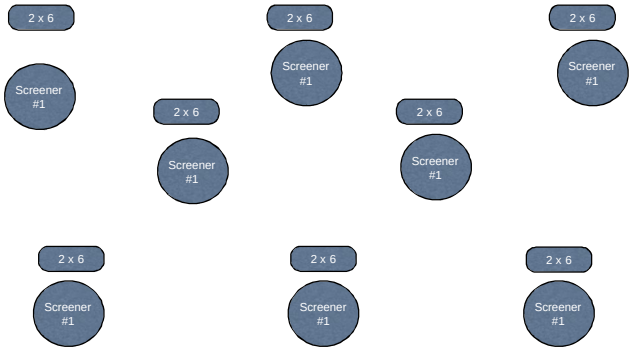
2 Athletes, 1 Screener



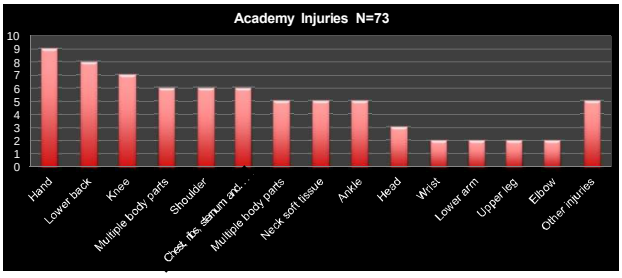
10 Athletes, 1 Screener



300 Athletes, 7-9 Screeners



Academy Injuries



Group screening data collection

		Moore, J	Riley, R	Gomez, L	Thorton, B	Wooton, J	Torres, S	McCloud	Carreon, J	Gutierrez, C	Thevenet, M	Hubbard, J	Anzures, D	Zamora, R	Gurule, M	Sisus, A	Dejesus, M	Offret, D	Anglin, J	Montoya, M	Armijo, J	
DS		2	2	2	3	1	2	2	2	2	2	1	2	2	2	2	2	2	1	2	2	1.9
HS	L	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1.85
	R	1	1	2	2	1	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	1.75
ILL	L	1	1	3	2	2	1	2	1	2	2	1	2	1	1	2	2	2	2	1	2	1.65
	R	1	2	2	3	2	2	1	1	1	2	1	1	2	2	2	2	2	2	2	2	1.75
SM	L	2	3	1	3	1	2	2	1	2	3	2	3	1	2	3	1	2	2	2	2	2
	R	2	3	2	3	2	3	2	2	2	3	2	3	2	2	3	1	3	2	2	2	2.3
Clear	L	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	R	N	N	N	N	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
ASLR	L	2	2	2	1	1	1	1	2	1	3	2	2	2	2	1	1	2	2	1	1	1.6
	R	1	2	2	1	1	1	1	3	1	3	2	2	2	2	1	1	1	2	1	1	1.55
TSPU		2	2	2	1	2	2	2	1	1	2	2	1	3	1	2	1	2	2	2	2	1.75
Press Cl		N	P	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
RS	L	2	2	2	2	2	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	1.8
	R	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2	2	1.9
PRCT		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
Total		11	14	15	14	11	11	11	10	10	15	11	13	13	12	14	11	13	13	12	12	12.3

Group Performance vs. FMS

< 40%	
40% or >	
60% or >	
80% or >	

Target % - 30% - 0% (10% Increments)		
1	2	3
40%	60%	80%

Elevation Adjustment	
30	Sec

Notes: Time for Elevation Adjustment and 1.5 MI Run need to be entered as h:mm:ss format.

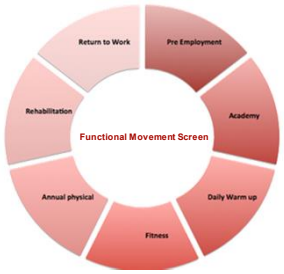
Sit & Reach - 15" is to bottom of feet. Feet no more than 8" apart.

Editable Fields or Columns

			Adjusted 30 Sec.				Enter Date															
FI	MI	Last Name	1.5 MI	40%	60%	80%	300 M	40%	60%	80%	PU	40%	60%	80%	SU	40%	60%	80%	SR	40%	60%	80%
J		Anglin	10:26	12:59	11:57	10:38	49	59	54	50	48	29	37	47	47	38	42	47		16.5	24.8	33
D		Antunes	10:26	12:59	11:57	10:38	49	59	54	50	48	29	37	47	48	38	42	47		16.5	24.8	33
J		Armijo	10:26	12:59	11:57	10:38	49	59	54	50	57	29	37	47	43	38	42	47		16.5	24.8	33
J		Carreon	10:12	15:35	13:55	12:26	52	71	61	58	37	15	21	28	45	32	38	44		19.3	29	38.6
M		Delesus	11:08	12:59	11:57	10:38	103	59	54	50	5	29	37	47	24	38	42	47		16.5	24.8	33
L		Gomez	12:06	16:36	15:03	13:23	57	79	71	66	46	11	15	21	51	35	39	45		18.3	27.5	34.6
M		Gurule	11:08	12:59	11:57	10:38	48	59	54	50	51	29	37	47	36	38	42	47		16.5	24.8	33
C		Gutierrez		17:41	15:47	14:08		94	79	72		9	13	15		20	24	29		17.3	26	34.6
J		Hubbard	15:01	14:20	12:55	11:39	70	72	64	57	15	18	24	30	48	29	34	39		14.3	21.5	28.6
A		McCleod	11:08	12:59	11:57	10:38	48	59	54	50	28	29	37	47	30	38	42	47		16.5	24.8	33
M		Montoya		12:59	11:57	10:38		59	54	50		29	37	47		38	42	47		16.5	24.8	33
J		Moore	10:55	13:23	12:19	11:08	47	58.9	55	51	56	24	30	39	58	35	39	43		15.5	23.3	31
D		Offret	10:04	12:59	11:57	10:38	50	59	54	50	61	29	37	47	47	38	42	47		16.5	24.8	33
R		Riley	9:24	13:23	12:19	11:08	48	58.9	55	51	51	24	30	39	47	35	39	43		15.5	23.3	31
A		Sena		12:59	11:57	10:38		59	54	50		29	37	47		38	42	47		16.5	24.8	33
M		Thevenet	10:25	15:35	13:55	12:26	52	71	61	58	39	15	21	28	45	32	38	44		19.3	29	38.6
B		Thornton	10:09	12:59	11:57	10:38	48	59	54	50	57	29	37	47	43	38	42	47		16.5	24.8	33
S		Torres	10:31	12:59	11:57	10:38	48	59	54	50	43	29	37	47	47	38	42	47		16.5	24.8	33
J		Wootton	10:09	13:23	12:19	11:08	44	58.9	55	51	54	24	30	39	47	35	39	43		15.5	23.32	31
R		Zamora	9:23	12:59	11:57	10:38	49	59	54	50	57	29	37	47	42	38	42	47		16.5	24.8	33

Where and How to Use the FMS in Tactical & Occupational Setting

- Pre-employment
- Daily Warm-up
- Academy Training
- Wellness & Fitness Programs
- Injury Prevention
- Rehabilitation
- Return to Work
- Fit-for-Duty
- Job Readiness
- Annual Physicals



The FMS can be used along any spoke or combination of spokes, they work together not independently

Pre-employment Physical

Screens are performed during Pre-employment process

Pre-employment preparation:

- Physical Exam
- Blood Work
- Blood Pressure and Biometrics
- EKG and Stress Tests
- Hearing, Vision, Respiratory Tests
- **FMS**

Daily Warm-Up

Corrections can be used as part of warm-up; before activity, work, or exercise

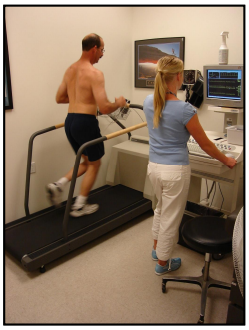
Recruit Academy

Fitness or Wellness Program

Injury Prevention

Rehabilitation

Annual Physical



The FMS can be integrated into annual employee physical exams to establish baselines and track trends.

Bringing it All Together

FMS in the OCFA

Recruit Score Breakdown
(N=112)

Recruits	FMS™ Score	
FMS Score	14 or Less	15 or More
Number	53	59
Percentage	47%	53%

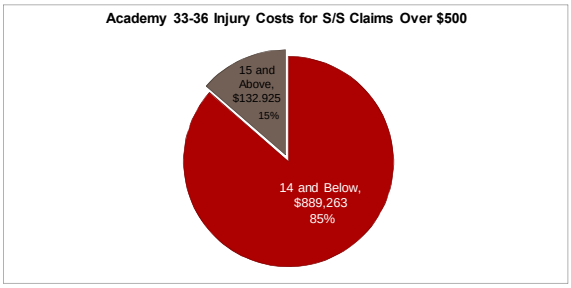
Injuries per Group
(cutoff is score of 14)

Results From 112 Recruits That Make Up Each Group of Injuries Analyzed		
FMS Score	14 or Less	15 or More
Number	31 of 53	12 of 59
Percentage	58%	20%

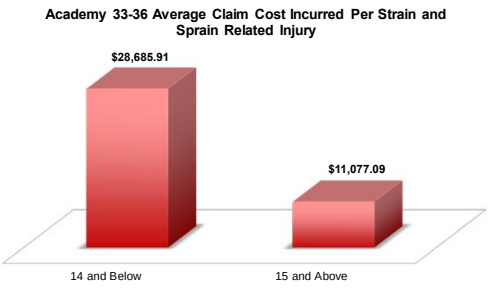
Claim Comparison
(cutoff is score of 14)

	FMS score of 14 or Less	FMS score of 15 or More	Total
Claims	Claims	Claims	Claims
Total Injury Claims	79	56	135
Not S/S	19	18	37
S/S Claims <$500	29	26	55
Injuries Analyzed	31	12	43

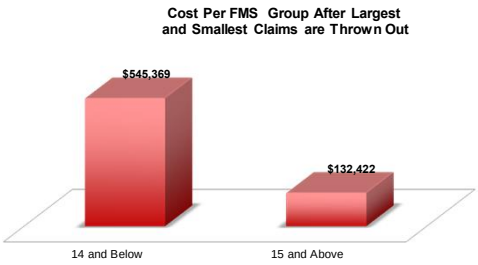
The Cost of Hiring Poor Movers



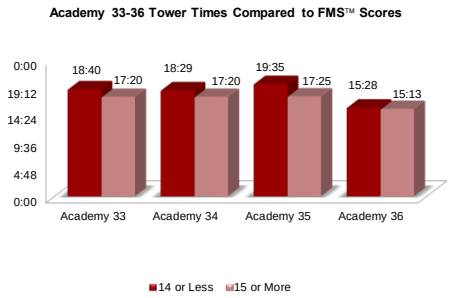
Average Cost Per Injury



Accounting for Statistical Abnormalities



FMS and Performance



Who can benefit from the FMS System?

Tactical Athletes
Occupational Athletes
Recreational Athletes
Performance Athletes
Geriatric Athletes
EVERYONE!

FMS Occupational Wellness

coming soon….

Mikecontreras5@gmail.com