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Lorich, Michael F., Line-of-Duty Injury or Illness Incidence in an Air National Guard Unit. Master of Public Health, DO/MPH track, May 2001, 31 p.p., 3 tables, 4 illustrations, reference list, addendum.

Line-of-duty injuries or illnesses (LODs) suffered by members of Air National Guard units may demonstrate the status of unit safety, unit readiness and deployability, a potentially significant area of unit expenditures, and areas of needed health promotion. This descriptive pilot study was conducted at the unit commander's request to determine an apparent doubling of the prevailing incidence of LODs over a recent quarterly period.

Tracking of injuries and injured individuals was problematic. The vast majority of LODs were musculoskeletal in nature. Decreased fitness level (identified as elevated body mass index (BMI)) among males and increased age were related to increased LODs. Recommendations were given to improve tracking, identify individuals at increased risk, provide pre-training assessment, and institute health promotion focussed on musculoskeletal injuries.

Line-of-Duty Injury or Illness Incidence
in an Air National Guard Unit

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LINE-OF-DUTY INJURY OR ILLNESS INCIDENCE IN AN AIR NATIONAL GUARD UNIT

PROBLEM IN LIEU OF THESIS

Presented to the School of Public Health

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By

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The business of living life is not accomplished alone. Certainly a garden unattended produces much less than one tended with love and care. I have had the good fortune to be blessed by God with the love and support of many.

My loving and wonderful wife, where would I be without you? I dare not contemplate. My family, who did all they could to ease my burdens; my church family, who prayed for me; and my friends and colleagues, who provided free-spirited thinking and guidance - I thank you all.

My sincere gratitude belongs to my major professor, Dr. Muriel Marshall, and the members of my committee, Dr. Sharon Clark and Dr. Antonio Rene. Thank you for keeping me focussed and moving forward. I am also grateful to the members of the military and the staff at the Health Science Center who enabled this collaborative work. I thank you for your valuable time.

LIST OF TABLES

INTRODUCTION

This work is a descriptive study of reported illness/injury cases in the "line-of-duty" (LOD) in an Air National Guard unit. Personnel medical records were reviewed to characterize individual illness/injury, duty status, and unit demographics. Population profiles were established with the available data. An attempt to compare these profiles to similar populations found in the literature was performed.

The right to a duty status is subject to the interpretation of health care providers and the unit chain of command (ANG INSTRUCTION, 1996). Federal laws require that a determination whether certain illness, injury, or disease is suffered by Air National Guard members while in a duty status and whether such illness, injury, or disease are the result of a member's own misconduct. These findings are used by the Air National Guard to determine fitness for duty and eligibility of members of the Air National Guard of the United States for medical/dental care, for possible incapacitation pay and allowances, and for other compensatory practices (ANG INSTRUCTION, 1996).

Line of duty and misconduct determinations (LODs) are illnesses or injuries which occur while in a duty capacity. A duty capacity may include active duty - AD (active guard reserve personnel drills and annual 2 week training);

inactive duty training - IDT (weekend), and temporary duty - TDY (attached to a unit for a specified period of time) (ANG INSTRUCTION, 1996).

Work relatedness of the injury or illness may not be valid if the event did not occur in the conduct of unit missions ("in the line of duty"), if the incident violated specific prohibitive policies or regulations, and if the injury was the result of gross negligence or misconduct (ANG INSTRUCTION, 1996).

Processing of LOD incidents is required to begin no later than 15 working days from notification of the incident, using specific military forms (e.g. NGB Form 348 – Line of Duty Determination, SF 600 – member's health record, AF Form 422 – Physical Profile Report, and DD Form 261, Report of Investigation, and Line of Duty and Misconduct Status), and conducted by personnel appointed by the unit commander. Upon completion of the aforementioned reports, a Medical Evaluation Board (MEB) convenes to determine the service member's military duty status, if an injury would result in the member being unable to perform future military duties (ANG INSTRUCTION, 1996).

PROBLEM

Previous quarterly unit data reported LODs frequency to be 2 to 3 incidents per quarter. The incidence appeared to increase to 8 LODs for the quarter ending in September 1999. At the unit commander's request, this preliminary investigation was conducted to determine sources of this increase in incidence.

PURPOSE

1) Describe reported illness/injury cases including multiple variables that could be used as predictors of future illness/injury. 2) Review reporting formats to determine if administrative processes were a variable in the reported increase number of cases. 3) Attempt to describe trends of cases to provide direction for future interventions.

JUSTIFICATION

Investigation of this data is important because it demonstrates: 1) status of unit safety, 2) lost work time which compromises unit readiness and deployability (Writer, DeFraites, and Keep, 2000), and 3) expense incurred due to medical costs, work delay, and increased personnel requirements (Powell, Fingerhut, Branche, and Perrotta, 2000) (Songer and Laporte, 2000). Also, this investigation may provide direction and impetus for initiating programs to address health promotion (Smith, Dannenberg, and Amoroso, 2000).

BACKGROUND

Health promotion has long been a key military concern. Historically, more casualties (morbidity and mortality) have occurred in war settings as a result of causes other than direct combat injuries (Powell, Fingerhut, Branche, and Perrotta, 2000). This is especially true in today's military with it's largely "peace time" mission. In the military, a number of approaches to health promotion have been implemented. In a recent article, Collins and Custis argue that "An enlightened conceptual approach with the structural integration of military human resources programs, occupational health programs, lifestyle programs, and health benefits programs can practically achieve efficiencies in program management, decrease morbidity, and reduce medical care costs" (Songer and Laporte, 2000) (Collins and Custis, 1993). This perspective is supported in a review article of physical training and exercise-related injuries in military populations. Jones and Knapik found that a five step public health process involving: 1) determination of the existence of a problem, 2) identification of modifiable causes and risk factors, 3) determination of effective preventive measures, 4) dissemination of this information to those who can implement preventive programs, and 5) monitoring program effectiveness, will lead to effective injury prevention (Jones and Knapik,1999).

Personnel education and training is the cornerstone of any successful health promotion policy. The military has consistently demonstrated that a trained fighting force is more effective and has taken great steps to achieve this result on multiple levels. For example, a U.S. Navy study of it's Healthy Back Program found that the intervention group scored substantially higher on the knowledge test of proper lift techniques and back anatomy than did the control group. The implication is that fewer back-related injuries should occur in the intervention group. This is significant given that in the study 41% of recruits reported one or more back problems in the past, and 27 % reported one or more incidents within the last year (Woodruff, Conway, and Bradway,1994). Educational programs are not without caveats. It is important to direct education resources effectively. A 16-week prospective health education intervention study that was aimed at a change of behavior with regard to warm-up, cool-down, and stretching exercises, did not result in a reduction of running injury incidence. This led researchers to conclude that a modification of behavior with regard to the early detection of symptoms of overuse injuries, full rehabilitation after injury to avoid the recurrence of injury, and the distribution of training load may have been a better educational intervention in light of pre and post exercise behavior in this population (van Mechelen, Hlobil, Kemper, Voorn, and de Jongh, 1993). Post incident education is also important. Fitzgerald et al. (1993) reported on the use of debriefing as a therapeutic intervention with traumatically injured soldiers. They found that debriefing promoted healing and recovery, improved safety measures, helped direct preventive programs, and provided for better resource allocation.

Balancing physical training to meet the abilities and needs of unit personnel can reduce disability. Personnel demographics demonstrate that while overall individual needs are similar, physiologic differences between female and male personnel can impact training programs (Rudzki and Cunningham, 1999). In addition, care must be used in selecting relevant criteria for measures of program success. A physical fitness test may be a good measure of overall fitness but may not reflect ability to perform ones duties as a soldier (DiBenedetto, 1989). However, overall fitness as indicated by percentage of body fat or body mass index (BMI) and smoking status can be predictive of physical fitness test scores. Together these factors can assist in determining those who may benefit from training programs to improve fitness and thus reduce injuries in physically demanding military occupations (King, O'Brien, and Mangelsdorff, 1988). Sports injuries have been found to contribute greatly to the incidence of injury and decreased readiness in all branches of the military. Fitness programs must be tailored to improving fitness, educate personnel, but not significantly increase injuries (Lauder et al., 2000).

Fitness and injury prevention are paramount in situations of increased stress such as annual training of reserve units, unit deployment for training, and unit deployment during potentially hostile military operations (Writer, DeFraites, and Keep, 2000). A strong argument has been made "...that in order to serve, the combatant must be sustained in a hostile environment. The status of health, physical fitness, and protection against known medical hazards are major contributors to success." Recommendations to preserve readiness include: 1) training soldiers in personal hygiene/first aid/buddy care (combat lifesaver training); 2) maintain physical fitness; 3) educate line officers/non-commissioned officers in their responsibilities in maintaining the health of the force; and 4) identify soldiers with disqualifying physical impairments and treat or separate prior to annual training or mobilization (Korenyi-Both, Dellva, and Juncer, 1991). Medical surveillance feedback from recent military operations has led to low disease and low non-battle injury rates among U.S. soldiers deployed in Bosnia-Herzegovina during 1997. This occurred even though in-depth analyses of hospitalization risks for U.S. soldiers demonstrated significantly higher rates among certain demographic groups. Procurement and timely analysis of disease and injury patterns allow the commander to take steps which support unit effectiveness (McKee, Kortepeter, and Ljaamo, 1998).

RESEARCH DESIGN & METHODOLOGY

This is a descriptive study of a specific population. Data was collected based upon a previously prepared LOD incident summary. Data from this known population was gathered by direct review of individual medical records and then tabulated. Data was limited to available unit medical records. This analysis was an initial medical demographic surveillance pilot project and was conducted at the request of the military unit commander. Confidentiality of the personally identifiable information was maintained by coding the data and securing the data in the principal investigator's office. Maintenance of the identifying code prevented sample duplication during the data collection phase.

A total of 20 LOD incidents were extracted from the available medical records. These incidents did not correlate to the original reported data. The original report included quarterly data from December '97 through September '99 while this data spanned quarters June '98 through September '99. Also, the original report did not include data for the June '99 quarter and there may not have been a one-to-one correlation of data points between data sets. Of the 20 LOD incidents 15 met criteria as LODs. Two (2) did not; although these incidents occurred during training periods they did not occur in the context of performing military duty. One (1) incident represents misconduct on the part of the service member for violating instructions prohibiting actions that directly resulted in the injury. Finally, two (2) were indeterminate due to lack of available information. In only one LOD incident did personnel complete the primary required military form (DD form 348) for reporting of LOD incidents. That incident was the injury involving misconduct and was processed as a line-of-duty injury.

Variables assessed include a brief description of the given incident, location, time (during regular duty hours or not), duty status, rank or grade, presence or absence of LOD NGB Form 348, gender, age at time of incident, height, weight, and blood pressure. Vision was defined as 20/20 uncorrected or corrected to 20/20 per entrance physical. Hearing deficits were determined upon entrance to military service or by specific investigation of hearing injury. Hearing deficit was defined as a 30 dB average loss of pure tone level at 500, 1000, and 2000 Hz in either ear with no individual level greater than 35 dB at these frequencies and loss of pure tone level not more than 45 dB at 3000 Hz and 55 dB at 4000 Hz in each ear (AFI48-123 Section A3.8 Hearing, 2000). Body mass index (BMI) was calculated from reported height and weight by the following formula: BMI = weight (kg) / height^2 (m^2). Smoking data was not available. Statistical analysis was limited to descriptive methods including histograms, calculation of range, mean, and standard deviation.

RESULTS

Twenty-seven (27) LOD events had been reported to the unit commander prior to this investigation. During the data collection phase of this work, a total of 20 incidents were gathered by unit personnel and reported as being the currently available LOD incidents. The number of available LOD incidents per quarter did not correlate to previously reported number of LOD incidents by quarterly date. Only one (1) of the 20 reported events had a completed NGB Form 348 – Line of Duty Determination. This particular LOD incident was in violation of explicit health instructions given during the public health office's medical intelligence briefing prior to overseas training. However, this was given an LOD status and the service member received appropriate medical care at the unit's expense. The remaining 19 events did not have the completed NGB Form 348 but were provided by the unit as LOD incidents for the purpose of this study.

The data (see Table 1) show elevated incidence of LODs during the quarters ending in Mar-99, Jun-99, and Sep-99. After adjusting for number of incidents involving Active Duty (AD) personnel (they receive all their medical care through the military and automatically qualify as LOD), this elevation was still present in the June and September quarters. After adjusting for incidents which occurred in relation to the annual training (AT) held in the June quarter, the rise in the incidence of LODs was greatly reduced but still notably higher than previous quarters. When adjusting for both AT and Active Duty personnel, differences in number of LODs between these three quarters resolved but were still higher than previous quarters. Active Duty personnel comprised the largest group; having six injuries. Five LOD incidents were related to AT-99.

Table 1

Reported Quarterly LODs

	Total	Less AD	Less AT	Original
Dec-97	No Data	--	--	5
Mar-98	No Data	--	--	4
Jun-98	1	1	1	3
Sep-98	1	0	1	2
Dec-98	1	1	1	2
Mar-99	4	1	4	3
Jun-99	8	7	4	--
Sep-99	5	4	4	8
Total Incidents	20	14	15	27

Type of injury was predominantly musculoskeletal (11 of 20 incidents) (see Table 2) which raises concern for future disability (Sulsky, Mundt, Bigelow, and Amoroso, 2000) (Cox, Clark, Li, Powers, and Krauss, 2000). Extracurricular sports activities accounted for 5 out of 11 of these incidents. In addition to the musculoskeletal injuries, there were two heat injuries and one each of the following: gastric pain, vasectomy, finger laceration, pneumothorax, animal bite, abscessed gums, and otitis media. The vasectomy, while being an elective procedure, was performed on an active duty guardsman and automatically qualifies as an LOD for lost-time and medical expense purposes.

Table 2

Type of Injury	#	% of Total
Musculoskeletal	11	55
Heat Injury	2	10
Gastric Pain	1	5
Vasectomy	1	5
Laceration	1	5
Pneumothorax	1	5
Animal Bite	1	5
Abscessed Gums	1	5
Otitis Media	1	5

Average age at the time of injury was 33.6 years. The female to male injury ratio was 1:4. Gender distribution of the unit was 19% female. Female gender did not significantly contribute to LOD injury incidence. Given the nature of the injuries found, vision correction does not appear to have been contributory although, the uncorrected to corrected ratio was 11:9 which exceeds the uncorrected to corrected ratio of 3:1 found in the general population for poor vision (Sperduto, Siegal, Roberts, and Rowland, 1983). Although, the prevalence of hearing deficit of unit personnel was 30% and exceeded the national rate of about 10% (National Institute on Deafness and other Communication Disorders, 1996) (Collins, 1997), this also appeared to have no role in specific injuries.

Table 3

Descriptive Data - Mean

Gender	Female	Male
Number of participants	4	16
Age (at time of injury - years)	37.3	32.7
Blood Pressure (Systolic - mmHg)	121.5	125.4
(Diastolic - mmHg)	74.8	77.1
Height (inches)	63.1	69.7
Weight (lbs.)	138.8	183.7
Maximum Weight for Mean Height (lbs.)	142.4	171.5
Body Mass Index (BMI)	24.4	25.9
Maximum BMI for Mean Height	25.1	24.8
Following data is not gender specific		
Vision (uncorrected:corrected)	11	9
Hearing (no deficit:deficit)	14	6

Calculations (see Table 3) demonstrated that average blood pressure for males and females was well within desired national standards of less than 140/90 as defined by the Sixth Report (1997) of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Average body mass index (BMI) for males was calculated at 25.9. Air Force standards for the average height, 69.7 inches, for this group has a correlated maximum required weight of 171.5 1bs which calculated to a BMI of 24.8. Calculated average BMI for females was 24.4, which was within Air Force weight standards for women of average height of 63.1 inches with a required maximum weight of 142.4 lbs. and a BMI of 25.1 (see Table 3) (AFI48-123, 2000).

The data demonstrate a relationship between increased age and injury. Over age 30 the frequency of injury increased (see Fig 1). The data also demonstrate a relationship between increased age at the time of injury and high BMI (see Fig 2). This is especially true for males over the age of 30 years.

DISCUSSION

As an initial survey, this study demonstrated poor documentation of LOD incidents. This review of the reported LOD incidents revealed a discrepancy between the original data and the current data set. This discrepancy may be due to any or all of the following: 1) assigning LOD incidents by date at which they occurred rather than the date in which reporting was initiated or completed, 2) problematic tracking process for medical records, 3) non-availability of records due to personnel transfer (most likely LODs from earlier quarters), and 4) problematic documentation process for assigning injury or medical incidents as LODs during this study. Proper documentation is the key to surveillance and subsequent preventive measures (Kaufman, Brodine, and Shaffer, 2000). Lack of differentiation of Active Duty Air Guardsmen, who receive all their medical care via the military, inflates the incident report and may skew effective interventions.

Annual Training (AT) often demonstrates the unit's ability to deploy. Increased injuries are of concern (Writer, DeFraites, and Keep, 2000). Distribution of current LOD injuries demonstrates increased LOD incidence in relation to AT-99.

Musculoskeletal injuries comprise 55% of all LOD incidents found and are therefore the greatest potential focus for effective preventive interventions (Smith, Dannenberg, and Amoroso, 2000) (Sulsky, Mundt, Bigelow, and Amoroso, 2000) (Jones, Perrotta, Canham-Chervak, Nee, and Brundage, 2000).

This distribution is not entirely unexpected given the average BMI which reflects male overweight status and female near overweight status, both of which indicate poor physical conditioning (King and O'Brien, 1988) (Nevill et al., 1997). This is problematic in a military setting where intermittent strenuous physical demands require adequate physical conditioning. Although hearing and vision deficits have not specifically related to given LOD events, the data shows that the prevalence of these deficits in the unit exceeds national standards. This demonstrates an area in which safety and awareness programs may have a beneficial impact.

The high BMI for male service members shows a need for improved physical fitness within this group (see Fig 3). Unit strength may be affected if significant numbers of service members do not meet fitness standards and are thus barred from duty. Studies conflict on whether female gender by itself is an injury risk factor in military settings however, there is agreement that female fitness level is significant in incidence of injury (Snedecor, Boudreau, Ellis, Schulman, Hite, and Chambers, 2000) (Bell, Mangione, Hemenway, Amoroso, and Jones, 2000). Interestingly, this study indicates that based upon BMI, women in this group have a higher level of fitness than men.

It should also be noted that calculated BMI from the Air Force Standard Height and Weight Tables demonstrates a higher acceptable BMI for men than for women (see Fig 4). Furthermore, it appears that acceptable BMI for men exceed the overweight standards set by the National Institutes of Health. Also, the acceptable upper limits for women are at or just exceed these same national standards. Overweight is presently defined as a BMI greater than or equal to 25.0 and does not differentiate based on gender (National Institutes of Health, 1998). Overweight and especially obese persons are at increased risk for morbidity and mortality from a number of disorders (Tierney, McPhee, and Papadakis, 2000).

For those persons not meeting height and weight standards, the Air Force measures body fat percentages. Current acceptable body fat percentage maximums for males are 20% for those less than 30 years old and 24% for those 30 years and older. Current acceptable body fat percentage maximums for females are 28% for those less than 30 years old and 32% for those 30 years and older. Those individuals found to exceed the standards are afforded opportunities to comply and may receive a time-limited waiver for excess body fat percentage at the wing commander's discretion (AFPD 40-5, 1 Dec 1997 and AFRCI 40-502, 23 Feb 2001).

Increased age appears to be related to injury (see Fig 2), however this was not compared to average age of unit members at the time of this study. The data does demonstrate a relationship between increased age at the time of injury and high BMI. This follows similar trends for increasing BMI with increasing age (Kim, Owen, Williams and Adams-Campbell, 2000). Male age 30-40 years does appear grouped with the highest BMI (see Fig 3).

RECOMMENDATIONS

Initiating a more rigorous surveillance program per current military protocols as outlined in the above introduction would demonstrate compliance and enable accurate tracking. Proper documentation is imperative in order to assess unit fitness and develop effective intervention and preventative strategies as needed. Full-time (active guard & reserve (AGR) technicians) personnel should be tracked in a separate database. This would facilitate monitoring of preventive interventions on a daily basis first before expanding the program to include weekend training (Sulsky et al., 2000) (Jones et al., 2000). Institute a QA program to annually review the documentation process and training of the personnel performing this work so that improvements can be made.

Require all military personnel to meet fitness standards and direct fitness improvement measures towards those failing to meet the standards (Cox et al., 2000) (Schneider, Bigelow, and Amoroso, 2000). The benefits of this are twofold. Firstly, this should reduce the total number of injuries as these appear to occur in less fit individuals as shown by elevated BMI data. Secondly, positive interventions to assist reserve component members in achieving higher levels of fitness demonstrates active concern on the part of the unit command and has the potential for building unit esprit de corp.

Increased LOD incidence in relation to AT-99 indicates a need for improved safety measures surrounding AT. This also points to the need to prescreen service members for duty fitness prior to training. This data should be reviewed prior to AT to determine if the health risk to guardsmen is collectively in conflict with mission requirements for minimum numbers of specialized personnel. In other words, if unit personnel are barred from training due to poor health fitness will the unit still be able to accomplish it's given missions with the available number of qualified personnel?

Initiate injury prevention programs directed toward musculoskeletal injuries (Sulsky et al., 2000) (Cox et al., 2000). As this was the largest single type of LOD, positive interventions in this area should provide the greatest reduction in injury incidence. Consider revision of Air Force Height and Weight Standards to meet National Institutes of Health guidelines. This would demonstrate that the military is setting high standards and at the forefront of promoting the health of its members.

LIMITATIONS

The sample data was non-random and of finite size (20 subjects). This compromises inferences from sample to population by statistical means. Accordingly, results and conclusions drawn from this data are limited to the study population.

Lack of proper documentation of LOD incidents may have affected tracking. This may also account for differences between the original and current data sets. The discrepancy of current data from the originally reported LOD events therefore compromises the accuracy of the results. Selection of medical records by others may account for differences between the original and current sets and possibly skewed the results.

Absence of a comparative body of literature directly related to LOD incidents in the Air National Guard prohibits comparative conclusions about the acceptable number of LOD incidents per quarter.

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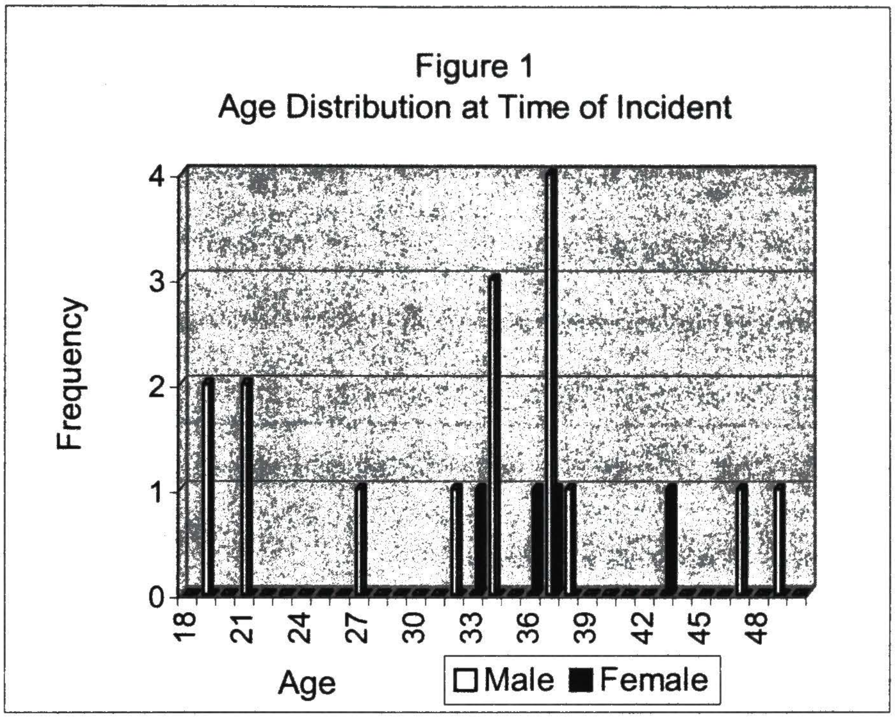
APPENDIX

APPENDIX A - Figures



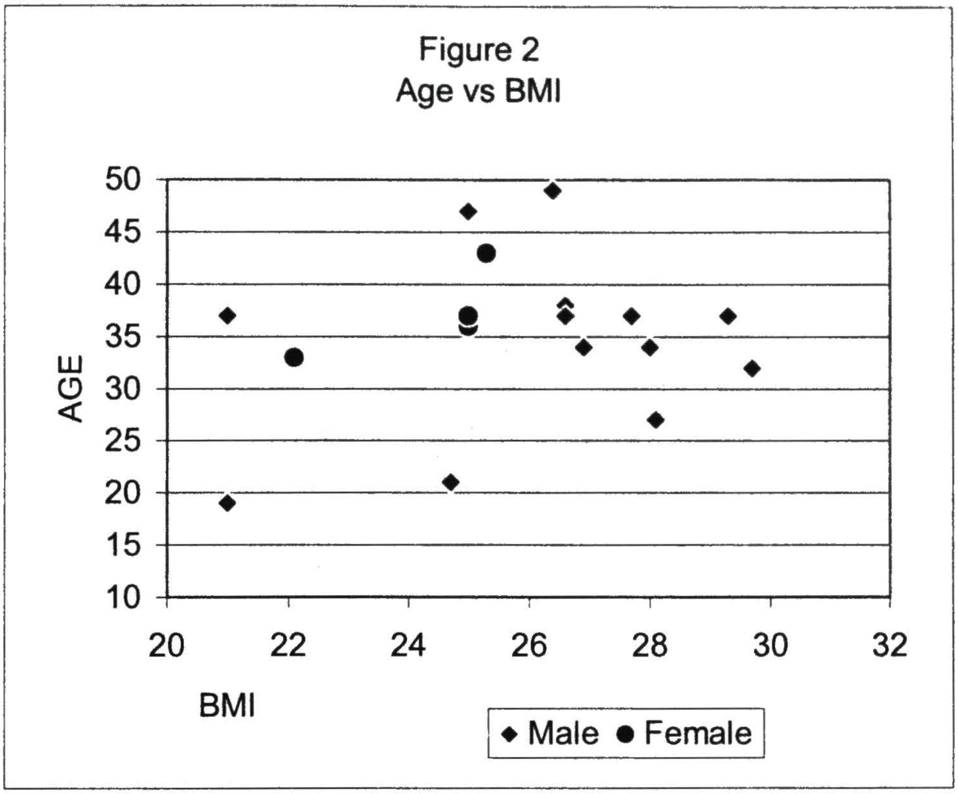


Figure 2
Age vs BMI
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25
20
15
10
AGE
20
22
24
26
28
30
32
BMI
Male
Female

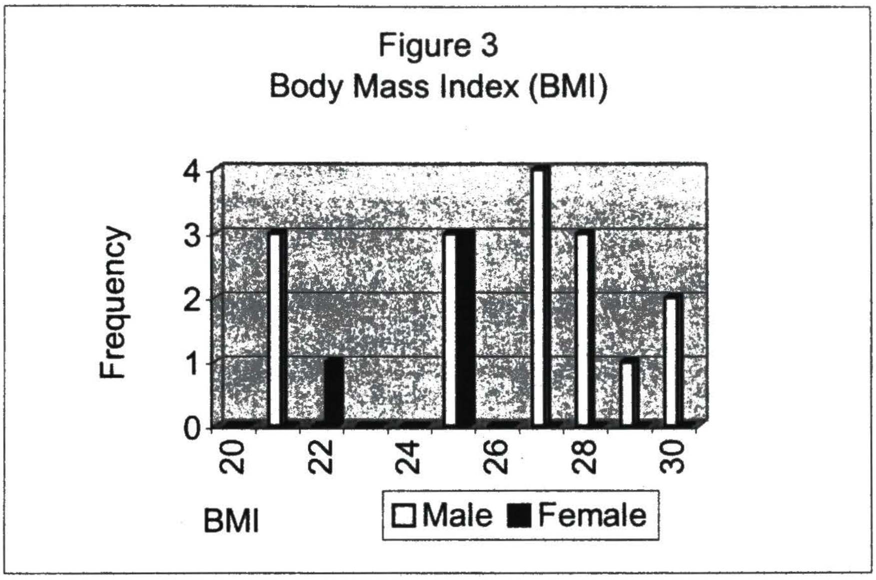
Figure 3
Body Mass Index (BMI)
Frequency
0
1
2
3
4
20
22
24
26
28
30
BMI
Male
Female

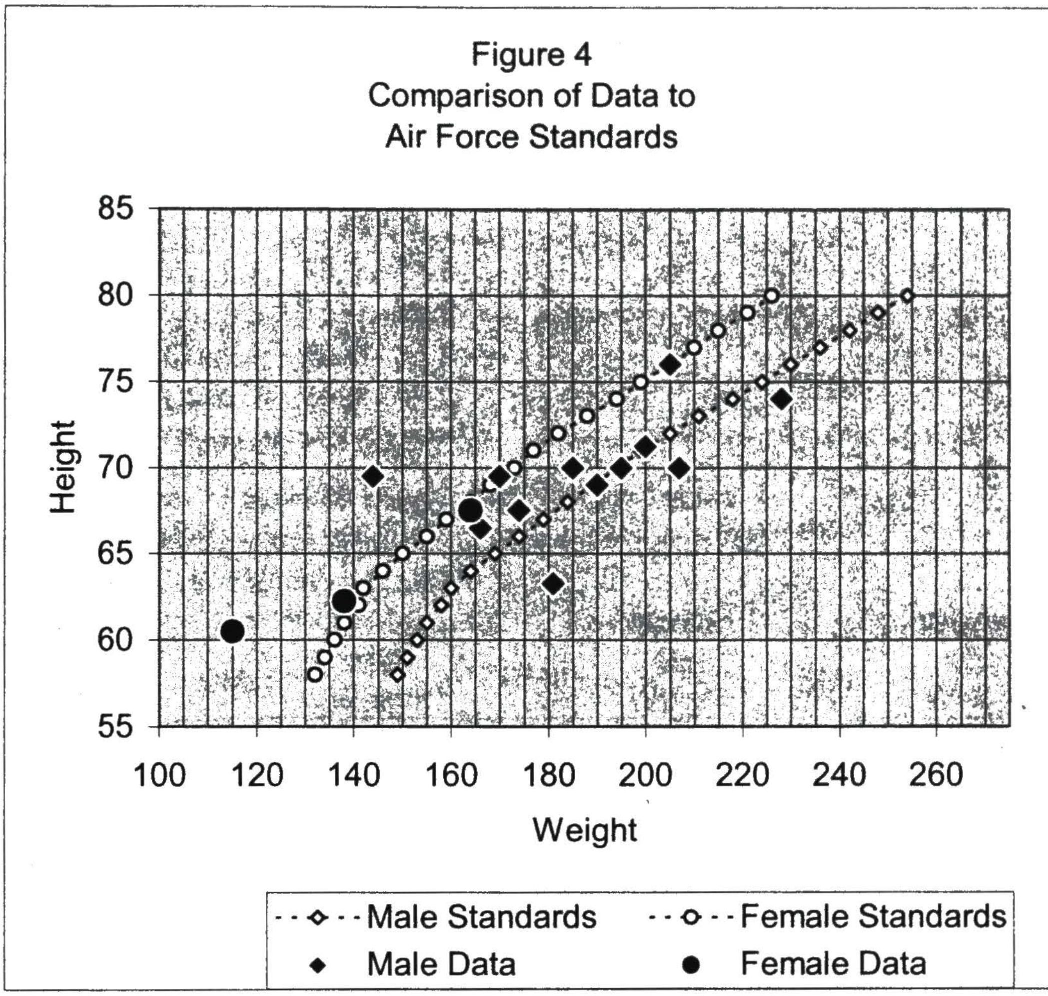
Figure 4
Comparison of Data to
Air Force Standards
85
80
75
70
65
60
55
Height
100
120
140
160
180
200
220
240
260
Weight
Male Standards
Female Standards
Male Data
Female Data

APPENDIX B – Guidelines

Obesity Guidelines per National Institutes of Health

		BMI
Underweight		<18.5
Normal		18.5 - 24.9
Overweight		25.0 - 29.9
Obesity	Class I	30.0 - 34.9
	Class II	35.0 - 39.9
	Class III	> = 40.0

BMI as calculated from AFI48-123 Height and Weight Tables

BMI is calculated as [weight(lbs.)/(height(in) x height(in))] x 703

703 is the english to metric conversion factor

Height	Men Min Weight	BMI	Men Max Weight	BMI	Women Min Weight	BMI	Women Max Weight	BMI
58	98	20.48	149	31.14	88	18.39	132	27.59
59	99	19.99	151	30.49	90	18.18	134	27.06
60	100	19.53	153	29.88	92	17.97	136	26.56
61	102	19.27	155	29.28	95	17.95	138	26.07
62	103	18.84	158	28.90	97	17.74	141	25.79
63	104	18.42	160	28.34	100	17.71	142	25.15
64	105	18.02	164	28.15	103	17.68	146	25.06
65	106	17.64	169	28.12	106	17.64	150	24.96
66	107	17.27	174	28.08	108	17.43	155	25.01
67	111	17.38	179	28.03	111	17.38	159	24.90
68	115	17.48	184	27.97	114	17.33	164	24.93
69	119	17.57	189	27.91	117	17.28	168	24.81
70	123	17.65	194	27.83	119	17.07	173	24.82
71	127	17.71	199	27.75	122	17.01	177	24.68
72	131	17.76	205	27.80	125	16.95	182	24.68
73	135	17.81	211	27.84	128	16.89	188	24.80
74	139	17.84	218	27.99	130	16.69	194	24.91
75	143	17.87	224	28.00	133	16.62	199	24.87
76	147	17.89	230	27.99	136	16.55	205	24.95
77	151	17.90	236	27.98	139	16.48	210	24.90
78	153	17.68	242	27.96	141	16.29	215	24.84
79	157	17.68	248	27.94	144	16.22	221	24.89
80	161	17.68	254	27.90	147	16.15	226	24.82

APPENDIX C – Data Summary

Male						
(at time of injury)	Age	Height	Weight	BMI	Systolic BP	Diastolic BP
Mean	32.69	69.72	183.69	25.92	125.38	77.13
Median	34.00	69.75	185.00	26.60	129.00	77.00
Mode	37.00	70.00	144.00	21.00	130.00	88.00
Standard Deviation	9.16	2.81	22.31	2.84	11.66	9.98
Range	30.00	12.75	84.00	8.70	38.00	34.00
Minimum	19.00	63.25	144.00	21.00	102.00	60.00
Maximum	49.00	76.00	228.00	29.70	140.00	94.00

Female						
(at time of injury)	Age	Height	Weight	BMI	Systolic BP	Diastolic BP
Mean	37.25	63.13	138.75	24.35	121.50	74.75
Median	36.50	62.25	138.00	25.00	122.00	78.00
Mode	#N/A	62.25	138.00	25.00	122.00	78.00
Standard Deviation	4.19	3.03	20.02	1.51	13.89	10.11
Range	10.00	7.00	49.00	3.20	34.00	23.00
Minimum	33.00	60.50	115.00	22.10	104.00	60.00
Maximum	43.00	67.50	164.00	25.30	138.00	83.00