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CRITICAL SKILLS OF MARINE CORPS INFANTRY SMALL UNIT LEADERS

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ABSTRACT

Emerging Marine Corps infantry concepts such as enhanced company operations (ECO) and distributed operations (DO) place increasing decision making responsibilities on small unit leaders. In the future it will become increasingly important to identify individuals with the required skill sets to perform these jobs. A comprehensive job-task analysis was performed to identify the most important skills, abilities, and other characteristics (SAOs) required for successful job performance of a representative small unit leadership position, the Fire Support Team (FiST) leader. Ratings were obtained from Marine Corps FiST instructors and expert job analysts. Agreement within and between ratings sources was high. SAOs involving adaptive planning, problem solving and decision making were rated among the most critically important leader characteristics. Other SAOs related to stress tolerance, performance under stress, leadership and teamwork also were identified as important.

INTRODUCTION

In the US Marine Corps, emerging concepts such as enhanced company operations (ECO) and distributed operations (DO) prescribe decentralization of decision making responsibility to empower small unit leaders to take more timely and effective actions. However, such changes to established practice can be expected to present significant new performance and leadership related challenges. For example, ECO/DO units will be capable of directly coordinating fire support from joint fire agencies to effectively respond to a broad range of threats, and sophisticated electronic communications will extend below the company level to small DO units to enable separation and coordination of interdependent tactical actions (Mattis, 2006). Due to their expanded role, leaders of ECO/DO units must possess a broad range of leadership and decision-making skills to effectively execute missions consistent with the commander's intent. Such skills can be maximized through personnel or human factors actions, such as training enhancements, personnel selection, classification, job-aiding, or equipment design.

As a first step in identifying the requisite skills, abilities and other characteristics (SAOs) critical to successful job performance of infantry small unit leaders, a job analysis was performed on a key Marine Corps small unit, the fire support team (FiST). The FiST is a company-level asset that functions to coordinate indirect fire agencies to support a maneuver element. The FiST generally consists of three or four principal members including: a FiST Lead (team leader), a forward air controller (FAC) or joint terminal attack controller (JTAC), and at least one forward observer (FO). The FiST Lead, an infantry officer, typically a 1st Lieutenant, is responsible for mission planning and execution to provide a maneuver element with supporting fires, in accordance with the commander's intent. The mission of the FiST Lead is cognitively demanding, requiring a comprehensive understanding of battlespace geometry, dynamic planning, situational awareness, and the ability to adjust to changing conditions under time pressure. These demands overlap significantly with those anticipated for NCOs leading future ECO/DO units, making the FiST Lead a logical proxy for the study of small-unit leadership and decision-making. A comprehensive analysis of SAOs associated with successful FiST leads will provide insight into qualities that are associated with a high probability of success among ECO/DO unit leaders.

METHODS

A facet-level SAO taxonomy consisting of 78 cognitive, non-cognitive, physiological, sensory and physical SAOs was culled to 57 based on preliminary ratings from job analysts familiar with FiST operations (Arnold et al., 2008). The original 78 SAOs, with definitions, are presented in appendix A. The decision to use such a large number of preliminary SAOs was made to ensure essential traits were not overlooked during the job analytic process, and to facilitate unambiguous measurement by focusing to the greatest extent possible on unidimensional psychological constructs. Preliminary culling of marginally relevant SAOs was performed to reduce SME rating time

requirements. Five-point Likert rating scales were developed to elicit SME ratings of the 57 retained SAOs.

After obtaining informed consent from SMEs to participate in the study, interviews were conducted over the course of one day with three USMC FiST Coyotes (instructors) at USMC Tactical Training Exercise Control Group (TTECG), 29 Palms, CA. The interview session was conducted in a group format, with a single researcher (RDA) meeting with the three SMEs. The SAO ratings described in this report were provided by SMEs during this interview session.

Due to the small number of available SMEs, ratings of FiST Lead SAOs from three expert analysts, previously described by Arnold et al. (2008), were added to the SAO analysis, resulting in ratings from a total of 6 raters. A Spearman's rho rank-order correlation of $r = .83$, $p < .001$ was observed between expert rater and SME ratings, indicating substantial agreement between sources of raters.

Analyses

To ensure data quality, quantitative indices of interrater agreement for SME ratings were calculated to support interpretation of the basic descriptive statistics (i.e., mean, standard deviation, and 95% confidence intervals). Two indexes of interrater agreement were used: r_{wg} and the average deviation (AD) index. The r_{wg} statistic is a conservative test that considers the ratio of variance observed in a set of ratings to variance that would be expected by chance (James, Demaree, & Wolf, 1984; 1993). The r_{wg} was supplemented with the use of the average deviation (AD) index, a measure of the average absolute deviation of a set of ratings from the mean or median of the ratings (Burke & Dunlap, 2002; Burke, Finkelstein, & Dusig, 1999). Research has indicated differential results associated with these indexes (Burke et al., 1999; Burke & Dunlap, 2002; Dunlap, Burke, & Smith-Crowe, 2003). Interpretation of observed interrater agreement was based on guidelines developed by Harvey and Hollander (2004) and statistical significance tests developed by Dunlap et al. (2003).

Following the work of Burke and Dunlap (2002) the statistical significance level of both r_{wg} and the AD index, which further takes into account the number of raters, was considered. The critical values of these statistics depend both on the number of raters and number of response categories. For example, according to Dunlap, Burke, and Smith-Crowe (2003), when N equals 10 and the number of categories equals 5, the critical value is .53. In a case when N equals 6, the critical value is .72 according to Dunlap et al. (2003). For the AD index *statistically* significant ($p \leq .05$) AD values are *practically* significant as well (that is, less than $c/6$) for Likert scales with five or more categories.

RESULTS

Table 1 presents the combined results of the descriptive statistical and interrater agreement analyses. All SAOs, with the single exception of *numerical reasoning*, were rated at the mid point of the scale or higher, which perhaps is to be expected since a preliminary cull (see Arnold et al., 2008) had eliminated 21 SAOs deemed least relevant

to the FiST Lead job by expert raters. Eight SAOs, *decision making skills, spatial orientation, task prioritization, teamwork skills, leadership skills, assertiveness, adaptability,* and *time management skills,* were rated by all 6 raters with the maximum possible rating. All rated SAOs, with the two exceptions of *reaction time* and *numerical reasoning,* achieved at least the level of practical significance in terms of interrater agreement.

Table 1. FiST Lead SAO ratings, importance to job performance. 1 = unrelated to job performance, 2 = weakly related to job performance, 3 = helpful to job performance, 4 = important to job performance, 5 = critically important to job performance.

	FiST Lead SAO	Mean	Stdv	0.95	lower bound	Rwg	*p*	AD	*p*
10	decision making skills	5.00	0.00	-	-	1.00	p<.05	0.00	p<.05 and Prac. Sig.
14	spatial orientation	5.00	0.00	-	-	1.00	p<.05	0.00	p<.05 and Prac. Sig.
20	task prioritization	5.00	0.00	-	-	1.00	p<.05	0.00	p<.05 and Prac. Sig.
36	teamwork skills	5.00	0.00	-	-	1.00	p<.05	0.00	p<.05 and Prac. Sig.
37	leadership skills	5.00	0.00	-	-	1.00	p<.05	0.00	p<.05 and Prac. Sig.
39	assertiveness	5.00	0.00	-	-	1.00	p<.05	0.00	p<.05 and Prac. Sig.
40	adaptability	5.00	0.00	-	-	1.00	p<.05	0.00	p<.05 and Prac. Sig.
47	time management skills	5.00	0.00	-	-	1.00	p<.05	0.00	p<.05 and Prac. Sig.
9	problem solving skills	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
12	oral expression	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
17	map reading	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
19	attention allocation and control	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
38	leadership motivation	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
41	emotional control/stability	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
42	stress tolerance	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
43	handling crisis/emerg. situations	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
48	planning skills	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
49	attention to detail	4.83	0.41	0.36	4.48	0.80	ns	0.33	p<.05 and Prac. Sig.
8	reasoning skills	4.67	0.52	0.45	4.21	0.74	ns	0.53	Prac. Sig. only
11	oral comprehension	4.67	0.52	0.45	4.21	0.74	ns	0.53	Prac. Sig. only
18	concentration/selective attention	4.67	0.52	0.45	4.21	0.74	ns	0.53	Prac. Sig. only
23	working memory	4.67	0.52	0.45	4.21	0.74	ns	0.53	Prac. Sig. only
24	work motivation	4.67	0.52	0.45	4.21	0.74	ns	0.53	Prac. Sig. only
29	confidence	4.67	0.52	0.45	4.21	0.74	ns	0.53	Prac. Sig. only
44	disengagement	4.67	0.82	0.72	3.95	0.59	ns	0.67	Prac. Sig. only
4	information mgmt skills	4.50	0.55	0.48	4.02	0.73	ns	0.60	Prac. Sig. only
5	systems comprehension	4.50	0.55	0.48	4.02	0.73	ns	0.60	Prac. Sig. only
7	critical thinking skills	4.50	0.55	0.48	4.02	0.73	ns	0.60	Prac. Sig. only
26	initiative	4.50	0.84	0.73	3.77	0.58	ns	0.80	Prac. Sig. only
50	safety consciousness	4.50	0.55	0.48	4.02	0.73	ns	0.60	Prac. Sig. only

28	mastery orientation	4.33	0.52	0.45	3.88	0.74	ns	0.53	Prac. Sig. only
30	dependability	4.33	0.52	0.45	3.88	0.74	ns	0.53	Prac. Sig. only
34	deliberation	4.33	0.52	0.45	3.88	0.74	ns	0.53	Prac. Sig. only
46	organization skills	4.33	0.52	0.45	3.88	0.74	ns	0.53	Prac. Sig. only
35	listening skills	4.17	0.75	0.66	3.51	0.62	ns	0.67	Prac. Sig. only
54	visual acuity	4.17	0.98	0.86	3.30	0.51	ns	1.00	Prac. Sig. only
56	depth perception	4.17	0.98	0.86	3.30	0.51	ns	1.00	Prac. Sig. only
15	spatial visualization	4.00	0.89	0.78	3.22	0.55	ns	0.80	Prac. Sig. only
16	mental rotation	4.00	1.10	0.96	3.04	0.45	ns	1.20	Prac. Sig. only
21	learning ability	4.00	0.63	0.55	3.45	0.68	ns	0.40	p<.05 and Prac. Sig.
25	achievement motivation	4.00	0.89	0.78	3.22	0.55	ns	0.80	Prac. Sig. only
31	rule abiding	4.00	0.89	0.78	3.22	0.55	ns	0.80	Prac. Sig. only
32	self-discipline	4.00	0.89	0.78	3.22	0.55	ns	0.80	Prac. Sig. only
33	accountability	4.00	0.63	0.55	3.45	0.68	ns	0.40	p<.05 and Prac. Sig.
2	Mental math	3.83	0.75	0.66	3.17	0.62	ns	0.67	Prac. Sig. only
13	navigation skills	3.83	0.75	0.66	3.17	0.62	ns	0.67	Prac. Sig. only
1	Mathematical ability	3.67	0.52	0.45	3.21	0.74	ns	0.53	Prac. Sig. only
22	long-term memory	3.67	1.03	0.91	2.76	0.48	ns	1.07	Prac. Sig. only
27	goal setting	3.50	1.05	0.92	2.58	0.48	ns	1.00	Prac. Sig. only
52	perceptual speed and accuracy	3.50	1.22	1.07	2.43	0.39	ns	1.20	Prac. Sig. only
53	response selection	3.50	1.38	1.21	2.29	0.31	ns	1.20	Prac. Sig. only
6	technical troubleshooting	3.33	0.82	0.72	2.62	0.59	ns	0.80	Prac. Sig. only
51	pattern recognition	3.33	1.03	0.91	2.43	0.48	ns	0.93	Prac. Sig. only
57	reaction time	3.33	1.63	1.43	1.90	0.18	ns	1.60	ns
55	hearing	3.17	1.33	1.17	2.00	0.34	ns	1.07	Prac. Sig. only
45	adventure seeking	3.00	0.89	0.78	2.22	0.55	ns	0.80	Prac. Sig. only
3	numerical reasoning	2.83	1.33	1.17	1.67	0.34	ns	1.40	ns

DISCUSSION

The large number of highly rated SAOs suggests infantry small unit leadership, particularly in FiST, is a highly complex and demanding job. It would appear that cognitive skills involving adaptive planning, problem solving and decision making are among the most critically important leader characteristics. However, non-cognitive characteristics related to stress tolerance and emotional stability are important as well, likely due to the need to perform well under stressful, dynamic conditions. Both leadership and teamwork skills are important.

The high level of interrater agreement, both within and between rater sources provides confidence in the validity of our findings. Ideally, however, research will be

conducted to confirm these findings, employing psychological tests to assess such critical SAOs as we have identified, and assessing their predictive validity in relation to established job performance criteria. In the interim, it is anticipated that these findings can provide useful information for personnel decisions related to infantry small unit leader development.

REFERENCES

Arnold, R. D., Phillips, J. D., & Strompolis, M. E. (2008). The Marine fire support team as a model for distributed operations analysis: Review of prior analyses, ongoing research, and recommendations for future work. Naval Aerospace Medical Research Laboratory, special report number NAMRL-08-11, Pensacola, FL.

Burke, M. J., & Dunlap, W. P. (2002). Estimating interrater agreement with the average deviation (AD) index: A user's guide. *Organizational Research Methods, 5*, 159 – 172.

Burke, M. J., Finkelstein, L. M., & Dusig, M. S. (1999). On average deviation indices for estimating interrater agreement. *Organizational Research Methods, 2*, 49 – 68.

Dunlap, W. P., Burke, M. J., & Smith-Crowe, K. (2003). Accurate tests of statistical significance for r_{WG} and Average Deviation interrater agreement indexes. *Journal of Applied Psychology, 88*, 356 – 362.

Harvey, R. J., & Hollander, E. (2004, April). *Benchmarking r_{WG} interrater agreement indices: Let's drop the .70 rule-of thumb*. Paper presented at the Annual Conference of the Society for Industrial and Organizational Psychology, Chicago.

Mattis, J.N. (2006). Distributed Operations. Briefing to Assistant Secretary of the Navy (RD&A), 23 June 2006, SPAWAR Systems Command, San Diego, CA.

Appendix A. Taxonomy of Skills, Abilities, and Other characteristics (SAOs), with definitions.

Cognitive SAOs

1.0 **Mathematical Ability**

1.1 Mathematical Ability - To add, subtract, multiply, and divide accurately.

1.2 Mental Math - To perform mathematical operations in one's head quickly and accurately.

1.3 Numerical Reasoning - To reason through math problems to determine the operations that can be performed and possible solutions; to apply mathematical formulas to problems.

2.0 **Problem Solving/Reasoning Skills**

2.1 Information Management Skills - To perform research and gather information necessary to solve specific problems; to identify and locate important sources of information (for example, technical manuals).

2.2 Systems Comprehension - To understand a system as a whole and the relationships among its components; to anticipate how changes in one component will affect the system as a whole.

2.3 Technical Troubleshooting - To use technical information to identify the source of a problem and potential solutions.

2.4 Critical Thinking Skills - To analyze the strengths and weaknesses of specific actions or decisions.

2.5 Reasoning Skills - To apply rules to come up with logical answers to problems; to combine separate pieces of information to form general rules or conclusions; to recognize patterns or trends and anticipate outcomes.

2.6 Problem Solving Skills - To recognize problems, their potential causes and solutions, and when they are likely to occur; to create effective and innovative solutions to problems.

2.7 Decision Making Skills - To make effective, confident decisions in a timely manner; to use sound, informed reasoning and avoid bias when making decisions.

3.0 **Communication Skills**

3.1 Oral Comprehension - To understand spoken English words and sentences (for example, information, ideas, or instructions).

3.2 Written Comprehension - To read and understand written English words and sentences.

3.3 Oral Expression - To speak English words or sentences so others will understand; to express information or ideas clearly.

3.4 Written Expression - To write English words or sentences so others will understand; to spell correctly; to write clearly and use language appropriate for the audience.

4.0 **Spatial and Navigation Skills**

4.1 *Navigation Skills* - To effectively navigate through an unfamiliar area to a desired location.

4.2 *Spatial Orientation* - To know one's location in relation to the environment; to maintain directional orientation when navigating an unfamiliar area; to accurately estimate direction or location after traveling for a certain amount of time.

4.3 *Spatial Visualization* - To form a mental image of a pattern or figure; to visualize how an object would look after certain changes are made (for example, when it is moved around or when its parts are rearranged).

4.4 *Mental Rotation* - To accurately rotate an object (for example, a map) in one's imagination while maintaining an accurate sense of direction.

4.5 *Map Reading* - To understand a visual representation of an area; to use information from a map to aid in navigation.

5.0 **Mechanical Abilities**

5.1 *Mechanical Comprehension* - To understand how machines, tools, and mechanical equipment work; to understand how physical forces affect mechanical components.

6.0 **Multitasking and Attentional Skills**

6.1 *Concentration/Selective Attention* - To maintain high levels of performance on a task in distracting or repetitive conditions; to maintain focus despite interruptions.

6.2 *Attention Allocation and Control* - To flexibly switch attention across different tasks; to attend to multiple, potentially conflicting sources of information.

6.3 *Task Prioritization* - To perform multiple tasks in order of their importance; to direct attention to tasks when they change priorities (e.g., emergencies).

7.0 **Learning and Memory Skills**

7.1 *Learning Ability* - To be willing and able to acquire new skills quickly and easily; to quickly understand new concepts, ideas, or facts.

7.2 *Long-term Memory* - To retain and recall information (for example, words, numbers, pictures, and procedures) after long time periods.

7.3 *Working Memory* - To hold information in memory while processing other information.

Noncognitive SAOs

8.0 **Motivation**

8.1 *Work Motivation* - To take a genuine interest in work tasks; to be willing to go above and beyond normal role duties; to be hard-working and ambitious.

8.2 *Achievement Motivation* - To seek out difficult and demanding tasks; to show extra effort and persistence when striving to meet work goals; to strive to do the best job possible.

8.3 Initiative - To initiate difficult tasks without excessive procrastination; to work independently and accomplish tasks without constant supervision; to take personal responsibility for completing work tasks.

9.0 **Development Skills**

9.1 Goal Setting - To set and strive towards challenging, realistic work goals; to adjust goals based on performance feedback.

9.2 Mastery Orientation - To seek out opportunities to acquire new skills and knowledge; to seek and use feedback to improve performance; to view performance errors as opportunities for self-improvement.

9.3 Confidence - To believe that one is capable of performing tasks in a wide variety of situations; to have confidence in one's skills and abilities.

10.0 **Conscientiousness**

10.1 Dependability - To be responsible, reliable, and punctual; to follow through on commitments.

10.2 Rule Abiding - To respect authority; to follow instructions and orders; to adhere to military rules, standards, and procedures.

10.3 Self-Discipline - To perform difficult, repetitive, or boring tasks while avoiding distractions or alternate activities.

10.4 Accountability - To consider oneself responsible for one's actions; to take corrective actions after making a mistake.

10.5 Deliberation - To be careful, thoughtful, and calculating when planning actions; to avoid impulsive actions; to imagine the possible outcomes of one's actions before acting.

10.6 Integrity - To be honest and trustworthy; to act according to high moral and ethical standards.

11.0 **Social/Interpersonal Skills**

11.1 Interpersonal Skills - To get along and interact effectively with a variety of people; to be tactful and diplomatic; to build and maintain effective working relationships with others.

11.2 Social Insight - To act appropriately in various social situations; to understand behaviors in the social environment in which they occur.

11.3 Agreeableness - To avoid interpersonal conflicts; to reach solutions to problems in a cooperative manner; to avoid upsetting others.

11.4 Social Closeness - To maintain close personal relationships; to be sociable and outgoing.

11.5 Listening Skills - To actively listen to and understand others; to attend to verbal and nonverbal cues (for example, body language, eye contact).

11.6 Teamwork Skills - To coordinate with others in a team setting to accomplish group goals; to assist team members who are overwhelmed; to offer and receive feedback.

11.7 Leadership Skills - To persuade and influence others to do perform specific actions; to act as a role model for others; to offer instruction and feedback to others as part of a team.

11.8 *Assertiveness* - To take charge and make decisions; to be persuasive, influential, and direct when dealing with others.

12.0 **Coping with Stress and Emergencies**

12.1 *Adaptability* - To adjust easily to changing situations or unexpected events; to flexibly change one's actions in response to changing task priorities.

12.2 *Emotional Control/Stability* - To control one's emotions in stressful situations; to avoid feelings of anxiety, insecurity, depression, or worry.

12.3 *Stress Tolerance* - To perform effectively under high workload, time pressure, or other stressful situations; to effectively handle stress under demanding situations.

12.4 *Handling Crisis/Emergency Situations* - To remain calm, analyze the situation, act appropriately, and make quick, accurate decisions in emergency situations.

12.5 *Disengagement* - To avoid disruptive thoughts after making an error; to quickly refocus attention on a task after a disturbing situation.

13.0 **Sensation Seeking**

13.1 *Energy* - To feel excitable and energetic; to show enthusiasm when performing work activities.

13.2 *Adventure Seeking* - To prefer tasks that may involve danger or risks (for example, high speeds); to avoid boring or routine activities.

14.0 **Planning and Organizing Skills**

14.1 *Organization Skills* - To schedule and organize one's work activities, materials, tools, and equipment in order to complete tasks efficiently; to keep one's work space neat and tidy.

14.2 *Time Management Skills* - To manage one's own time and the time of others to accomplish work goals.

14.3 *Planning Skills* - To carefully plan out the sequence of actions needed to meet short- and long-term work goals.

14.4 *Attention to Detail* - To pay close attention to the details of one's work; to ensure work is accurate and complete; to carefully review and scrutinize one's work.

14.5 *Safety Consciousness* - To be aware of safety hazards; to take steps to protect oneself and others from harm; to avoid risky behavior that could lead to accidents.

Physical, Perceptual, and Psychomotor SAOs

15.0 **Perceptual and Psychomotor Abilities**

15.1 *Pattern Recognition* - To identify or detect a known pattern (for example, a numerical code); to combine and organize different pieces of information into a meaningful pattern quickly.

15.2 *Perceptual Speed and Accuracy* - To perceive or compare information (for example, letters, numbers, symbols, or patterns) quickly and accurately; to notice or compare details about things quickly and accurately.
15.3 *Response Selection* - To choose between two or more possible responses quickly and accurately when two or more different signals are given.
15.4 *Control Precision* - To control the motion of a machine, vehicle, or piece of equipment (for example, joystick or yoke) quickly and accurately; to make fine, precise movements or adjustments.

16.0 **Sensory Perceptual Abilities**
16.1 *Visual Acuity* - To accurately discriminate details of near or distant objects or objects near the edge of the visual field; to see under low light conditions.
16.2 *Hearing* - To detect and discriminate among sounds that vary in pitch or loudness.
16.3 *Smell* - To identify odors and their possible sources.
16.4 *Touch* - To feel heat, vibration, or textures; to feel differences or changes in heat, vibration, or textures.
16.5 *Color Discrimination* - To discriminate between different colors and levels of brightness or shades of the same color.
16.6 *Auditory Attention/Localization* - To focus on a sound in the presence of other distracting and irrelevant auditory stimuli; to tell the direction from which a sound came.
16.7 *Depth Perception* - To judge the distance of an object from an observer; to judge the relative distance of multiple objects from an observer.

17.0 Physical and Psychomotor Abilities
17.1 *Manual Dexterity* - To make skillful, coordinated movements of the hands; to grasp, place, move, or assemble objects using hand movements.
17.2 *Multilimb Coordination* - To coordinate the movements of the body or limbs.
17.3 *Hand-eye Coordination* - To make precise, coordinated movements based on visual information.
17.4 *Reaction Time* - To respond quickly and accurately to one signal with a manual (hand or foot) or verbal response.
17.5 *Static Strength* – The ability to exert maximum muscle force to lift, push, pull, or carry objects
17.6 *Explosive Strength* – The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object
17.7 *Dynamic Strength* – The ability to exert muscle force repeatedly or continuously over time.
17.8 *Trunk Strength* – The ability to use one's abdominal or lower back muscles to support part of the body repeatedly or continuously
17.9 *Stamina/endurance* – The ability to exert oneself physically over long periods of time.

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