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Burnaby Fire Assessment Summary
Glossary of Terms

Functional Movement Screen (FMS)
The FMS takes the client through a series of fundamental movement patterns that require a balance of mobility and stability. The information gathered in this session can help us identify and address potential weaknesses, imbalances and asymmetries.

Cardiac Stress Test w/ VO_2 Max
The Cardiac Stress Test uses an electrocardiogram (ECG) to monitor heart rate and rhythm and assess cardiac risk. Metabolic data (oxygen consumption and utilization) is also recorded by collecting expired gases from the client. The test involves exercise on a treadmill at progressively increasing intensities until a target heart rate is achieved or client stops due to fatigue. This data can further be used to create specific training programs and assess aerobic capacity (or fitness).

COGNIGRAM©
The COGNIGRAM© is a standardized test used to evaluate various cognitive parameters (such as memory and reaction time) and is set as a baseline measure from which to compare in the event of a concussion. Should you experience a concussion, we will be able to assess your progress throughout recovery.

Pulmonary Function Test – Spirometry
Spirometry, or pulmonary function testing, is used to determine your lung function and how well you breathe. The client blows forcefully into a spirometer which is attached to a computer. Multiple measurements can be obtained from a Spirometry test, all which give a clearer picture on your lung function. Spirometry is useful in diagnosing asthma, COPD, or other respiratory conditions.

Body Composition
Having a balanced fat to muscle ratio can optimize health, increase performance, and enhance energy metabolism. The risk of developing many chronic diseases is increased by having a large body fat percentage in relation to muscle mass. Body composition and mass can be affected by hydration, time of day, or environmental conditions.

BMI (Body Mass Index)

- BMI is a ratio of height to weight and is commonly used in health risk stratification for the general population. It can be used to screen individuals into certain weight categories and measure the risk for cardiovascular or other health concerns.

PLEASE NOTE: BMI can sometimes be overestimated when an individual has increased lean muscle mass (instead of fat mass), common in firefighters and athletic populations; this increases the body weight disproportionately to height portraying an "increased disease risk." BMI should be used in conjunction with other measures of body composition, such as waist circumference, to ensure accurate health assessment and source of potential increased weight.

WC (Waist Circumference)

- While BMI tells us that a person may be overweight and at a higher risk for disease, WC gives more meaning to the BMI value. WC can show if a person's BMI rating is due to excess fat (high WC) or a larger muscle mass (normal WC). Firefighters often fit into this category as they often have a larger muscle mass.
- WC can be used alone or in conjunction with BMI to evaluate chronic disease risk.

LMI (Lean Mass Index)

- LMI is a relative measure of lean mass that takes into account skinfolds and body weight to determine a number that is specific to each individual. The higher the number, the more lean mass you have.

PLEASE NOTE: LMI can be overestimated when an individual has abdominal obesity which cannot be measured with skinfold calipers.

W:H (Waist to Hip Ratio)

- W:H is used as a simple method for determining body fat distribution. Disease risk increases with W:H and standards for risk vary with age and sex.

PLEASE NOTE: W:H can be overestimated when an individual has narrow hips or a straight body shape.

SO8S (Sum of 8 Skinfolds)

- SO8S is the total number of millimeters when adding all skinfold measurements together. Skinfolds are taken using calipers that measure the thickness of the fold and are a direct measurement of the size of the skin and fat. Over time, SO8S can be used to track changes in superficial body fat (skin thickness rarely changes) and when combined with girth measures, can provide a good picture of overall changes in body composition (lean and fat mass).

Girths

- Girths are taken using a tape measure at various sites on the body. Trunk and limb girths can be used to provide estimates of relative muscle mass and are a good tool to track training progress over time. Girths can also be used to monitor body proportions, understand changes in weight, and estimate health risks.

Why is body fat percentage not included in the report?

In order to calculate body fat percentage, the sum of skinfolds is entered into a formula that assumes many things that are not found to be consistent across all populations. Many of the formulas used also use age as a factor and would estimate the same person to have a body fat percentage at 6% if they were 29 years old, but 12% if they were 30 years old, for example. Skinfolds can also vary with hydration, time of day, recent exercise, and do not account for visceral fat which can add to the error when calculating body fat percentage. Tracking individual site measurements is preferred to assess body composition and track progress.