**Basic principles of strength development:**

**Strength**= amount of force a muscle can exert in a single effort. Relative strength is based on a ratio of weight lifted to body weight. **Muscular strength= less reps, heavier weight.**

**Endurance**= ability of a muscle or muscle group to do repeated contractions against a less-than-maximum resistance for a given time. The measurement of muscular endurance is based on the number of repetitions performed. **Muscular endurance= more reps, lighter weight.**

**Power**= Power is defined as the amount of work performed per unit of time. Power is an element of skill-related fitness that is needed to excel in athletic performance. Increased strength does not always translate into increased power. **Power= force\*speed \*time.**

**The Overload Principle**: This general principle refers to the fact that stress (demand) should be progressively increased in order to cause adaptation or change. Factors that can be used to overload include: load (intensity), volume (repetitions & sets), rest, and frequency.

**Progression:** Adaptation to stress is most effective when the stress is applied gradually. High levels of change take time to develop. Development is the result of many small gains. It is generally accepted that training should concentrate on volume (reps & sets) first and then on intensity (increased weight).

**Specificity of Training:** “SAID” Principle: Specific Adaptation to Imposed Demands. The body ALWAYS adapts to EXACTLY what it does. The body develops specifically according to stresses that are placed on it.

**Individual Difference:** Genetics influences how we develop fitness and skill. People have different body types and develop at different rates. Anyone can improve with consistency and hard work. Lifestyle is far more important than genetics in determining health and well-being.

**Reversibility:** This principle is the reverse of the overload principle. Use it or lose it. We start to lose our levels within 48-72 hours.

**Proper Technique:** The most common training error or mistake is the tendency to use poor form or cheating on the exercise. Use correct form all the time.

**Order of exercises:** If strength is your goal, start with multi-joint, large muscles first then proceed to single joint, small muscle exercises. Doing small muscle exercises first result in early fatigue thereby limiting the performance of the large muscles.

**Breathing:** Holding your breath and straining can cause the Valsava Effect, which can increase blood pressure and can cause unconsciousness. Exhale during the concentric (muscle shortening) part of the contraction, and inhale during the eccentric (muscle lengthening) part of the lift. Sometimes it is best to inhale, hold and do the lift, and then exhale depending on the lift.