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Strength and conditioning

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Abstract

Strength and Conditioning is the selection and development of dynamic or static exercises used to improve physical performance. In its simplest form it is the practical application of sports science to enhance movement quality. It originally benefited athletes but now it is widely used in both the sporting world and more generally. It's grounded in evidence-based research and physiology of exercise and anatomy. We all move and therefore we can all benefit from a better quality of movement. Strength and conditioning is neither hardcore for athletes, nor is a particular Olympic lift, prowler push, or hill sprint drill. It helps in improving performance and preventing injury, thereby transformation of body.

Keywords: strength, conditioning, dynamic, static exercises

Introduction

Strength and conditioning develop every area of the body and improve the way a person moves, with the intention of enhancing sporting or physical performance. Research demonstrates that correct and appropriate training can improve physical performance. It also shows that incorrect and inappropriate training can be very detrimental to the way the body moves and performs, whether that's in daily life. Strength and Conditioning training comprise of a wide range of exercises developed to build a variety of skills with a focus on mind, mobility, stability, strength, endurance, power, speed, agility and performance. It aims to improve strength and endurance, reduce the incidence and severity of sport injuries, and to improve technique and overall performance. It is Beneficial for people of different ages and abilities as it can help older people maintain and improve their health and quality of life. Strength and conditioning used to be a niche environment believed only to be for athletes, but as more people come to understand the many benefits of movement-based fitness, the strength and conditioning market is growing. Methods include plyometrics, speed and agility, mobility, core stability, endurance, and weight training and so much more depending on the individual or team's needs.

Principles of Strength and Conditioning

The main sports training principles: overload, reversibility, individualization, periodization, and specificity.

1. Overload - Certain adaptations require training with greater stimulus than that which the body is accustomed to. This could be done by increasing the intensity, duration and frequency of training.
2. Reversibility - The effects of training will be lost if training stimulus is removed for an extended period of time.
3. Individualization - People will have unique responses to the same training stimulus, due to individual characteristics such as biological age, training age, gender, body size and shape, past injuries etc.
4. Periodisation- An individual level of training determines how much improvements in performance they achieve due to training A novice will see huge and relatively quick gains in performance when they begin training, however, the gains get smaller and come more slowly as they get more experienced.
5. Specificity - Physiological adaptations to training are specific to the muscle groups trained, the intensity of the exercise, the metabolic demands of the exercise, and specific movements and activities.

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Benefits of strength and conditioning

The benefits of a good strength and conditioning programme will vary for every individual, depending on their abilities and goals.

1. Improved performance - A strength and conditioning programme will look to improve your client's performance over time. Programming is performance-specific using scientifically-backed training methods. Strength and Conditioning Coaches will be able to identify key areas of improvement and also measure results accurately. Performance can be improved by the technical, physical, tactical, or mental factors that starting a strength and conditioning routine has on participants.
2. Injury prevention - Main aim in strength and conditioning training is fully assessing a client's movement patterns so that you can use movement correct techniques to prevent injuries. Injury prevention is highly beneficial to athletes and amateurs alike. An improved level of proprioception is often achieved with strength and conditioning work. Proprioception is the awareness of movement and position in the body. This can be worked on with specific exercises and balance work.
3. Good general health - Exercise is good for our overall health and wellbeing, from mental to physical health. The combination of strength training, HIIT training, plyometrics, and cardio conditioning that characterise strength and conditioning training helps to increase cardiovascular health as well as muscular, skeletal and mental health.
4. Strong bones - Strength training not only just increase the strength of our muscles but also makes bones stronger. It can play a role in slowing bone loss, and can even build bone. This is quite useful to help offset age-related declines in bone mass. The stress that comes from the tugging and pushing on bone that occurs during strength training results in stronger and denser bones.
5. Improved posture - Movement mechanics are directly related to improved posture. Posture analysis is often conducted as part of an initial assessment so movement patterns can be developed based on improving functionality for the individuals' needs. Improved posture can lead to better overall bodily functions including on the respiratory system and circulation.
6. Improved mood - Exercise in all shapes and forms can help to release serotonin which improves mood and strength and conditioning is no different. Seeing the progress that comes with a science-based strength and conditioning programme can also be incredibly rewarding. As an athlete, strength and conditioning can improve your performance at a competitive level which is bound to be hugely exciting for any competitor.
7. Increased muscle mass and metabolism - Strength and conditioning training helps to build muscle, which in turn will give the metabolism a boost as muscle burns more calories at rest. An increase in lean muscle mass reduces the risk of insulin resistance, a group of risk factors for cardiovascular disease, and other factors which can lead to ill health such as elevated fasting glucose and triglyceride levels, hypertension, obesity and reduced HDL cholesterol.
8. Exercise can become more enjoyable - When you move correctly and you notice improvements in your movement technique, exercise becomes more enjoyable. This is not only because progress is motivating, but also because strength and conditioning helps to prevent

injuries by developing quality movement patterns. A reduced concern with the risk of injury also helps to make training more enjoyable!

9. Faster recovery after injury - One of the principles of strength and conditioning is to reduce injury through better movement, but unfortunately, sometimes injuries will still happen. Strength and conditioning can help here as the muscles will be stronger and more adapt which will aid the recovery process. A strength and conditioning coach will also be able to identify which movement patterns are out of bounds and how to use exercise to condition your muscles back to performance.

Other Benefits include Lower Abdominal Fat, Better Cardiovascular Health, Controlled Blood Sugar Levels, Reduced Cancer Risk, Lowered Injury Risks, Strengthened Mental Health, Improved Flexibility and Mobility and Elevated Body Image.

Conclusion

Strength and conditioning is used to develop every area of the body and improve the way a person moves, with the intention of enhancing sporting or physical performance. As you can see, strength and conditioning benefits so many areas of not just sport, but everyday life. Incorporating some of the principles into your own or your clients' training can really make a difference in how they perform, move, and live.

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