A STUDY OF RELATIONSHIP OF CATABOLISM & ANABOLISM ENERGY SYSTEM AND SPORTS PERFORMANCE

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ABSTRACT

The purpose of study was to overview the Relationship of catabolism& Anabolism energy system and Sports performance. All sports activities were based on aerobic and anaerobic nature and physiological demands of athlete's body during the training and competitions for optimum performance. Muscle is the major energy consumer to optimize training and athletic performance. Metabolism process of human body is a main source of energy through Catabolism and Anabolism process. . In human body, Metabolism works to supply the energy through anabolism and catabolism pathway, it depends on energy requirements and its availability in the body. This paper provides an overview of (1) The definitional category of Catabolism & Anabolism energy supply system (2) understand the functions of Catabolism & Anabolism energy system (3) Contributions of Catabolism & Anabolism energy system in sports training and competition. (4) Sources of Catabolism & Anabolism supply of energy system. Optimal sports performance depends on three principles i.e. types, supply and control of energy. The goal of present study is to review the basis of current research that how Catabolism & Anabolism Energy System can be used to optimize Sports Performance.

Key Words: *Catabolism, Anabolism, Energy System, sports training.*

INTRODUCTION

Sports Scientists have been investigating the optimal application of energy principal to human physical performance. For sports training and competition purposes, the two forms of energy that are important in the field of sports are chemical energy and mechanical energy. Chemical energy is stored in our bodies in different forms and it produces mechanical energy, which results in movements. The energy supply is based on rate of speed, the muscle fiber contracts and its ability to convert its chemical energy into mechanical energy during the training and competition. Adenosine triphosphate (ATP- CP) system is high energy chemical compound, natural in the muscle cell, and muscles are stimulated by a nerve impulse of Catabolism and

Anabolism metabolism. ATP molecules are used to transfer energy from Metabolism to Catabolic reaction and Anabolic reactions. Catabolic means "breaking down" and Anabolic means "building up". Catabolic and Anabolic are the two sides of metabolism. These two components help to maintain the function of the human body and the balance of energy stored in the system.

Optimal sports performance depends on the Physiological, Psychological, Nutritional facts and Training systems, supply and need of energy. In sports Physiology, they are used to analyze the balance between Catabolic and anabolic process since testosterone shows anabolic effects and catabolic effects on blood glucose level during exercise. [1]

CATABOLISM

Catabolism is the set of biochemical reactions that break down complex molecules into simpler ones. Catabolism reaction involved in hormones such as adrenaline, cortisol, glucagon and cytokines helps to store and release energy processes in organism. It is functional at resting or active state of the body situation. Catabolic reactions transfer energy from complex molecules to ATP.

CATABOLIC AND SPORTS PERFORMANCE

Catabolic pathways work in Aerobic (High Oxygen consume) or Cardio nature of sports activities. It may refer to Running, Swimming, Cross Country, Basket Ball and Biking. In aerobic sports, players are in active state for relatively long period of time. During Catabolic process, during the cardio nature of sports, heart rate, blood pressure, Respiration rise and body break down glycogen which is the reason of sweat during training and sports competition. In physical activities, sports performance, Catabolism state helps in breaking down or losing fat mass and muscle mass of body weight and also keeping good balance between nutrition, training and recovery. [2]

The food supply of catabolism as nutrient substances is breaking down Carbohydrate in starch, glycogen and glucose, fructose for supply of energy for aerobic sports activities.

ANABOLISM

Anabolism is the biochemical reaction that builds Complex substances from smaller subunits & transfer energy from ATP complex molecules. These processes are also know as anabolic pathways. During Anabolic reaction, hormones testosterone and insulin undergo chemicals reaction that causes cellular growth through activation of anabolic pathways.

ANABOLISM AND SPORTS PERFORMANCE

Any anaerobic (less oxygen using) nature of sport activities is called anabolism process. This process helps in building and maintaining the muscle mass in body for sports activities such as Olympic Weightlifting, Shot put, Hammer throw and isometric or resistance training systems. With these events and activities, the athlete's body need immediate reserves of energy and then removes the lactic build up in muscles. To be ready for another training effort, the body increases muscles mass, strength with the use of protein and fat which is stored in the body. In anabolism energy process, Carbohydrate, Fat and Protein nutrient substances are broken down to maintain muscle mass, when it is required during training and sports competition.

DISCUSSION

Through the available electronic articles, research article and other paper reference, it is understood that Anabolism requires energy to grow and build. Catabolism uses energy to break down. These metabolic processes work together in all living organisms to do things like produce energy and repair cells and maintain the energy balance in the body. On the other side the difference between

anabolic and catabolic processes may help you reach the goals of the sports performance and training. It can help in sports training and nutrition plan for different sports activities.

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