

Preface

In this book, we will offer enough starting material for athletes to develop their autonomy so that they do not completely depend on coach opinion and instructions. Co-dependency within athleticism will not allow a full development of potential. Nobody besides athletes knows the limitations and limits of the human body better. In order to be independent one must create a training process that is not always comfortable and can be done in any environment. By doing this, synaptic connections in the brain will not work the same way and the new neural pathways will produce different and more favourable results (Fig. 1).

However, training is supposed to bring some form of result each time it is done. The training process is an artistic creation, it is not a rigidly established set of rules. Rather it is supposed to inspire a joy and excitement within an athlete that produced dopamine, endorphins and other hormones that promote happiness and the will to succeed. Sports are not dissimilar from other activities in life. Especially since scientists discovered the amount of hours essential for top-level success (10000 h in 10 years). This is fully explained in Malcolm Gladwell's book *Outliers: The Story of Success* [1]. Calculating 10 years in the number of hours with basic maths shows that 10 times 365 (number of days in a year) would give us 3650 days. Multiplying that with 24 (hours in a day) is equal 87600 and with basic operation of division will give us approximately 8.7 h of work per day. Working this much per day could promote talent from ordinary to extraordinary. From a local athlete to a champion. It only takes hours. It seems obvious when it is pointed out, but the individual who dedicates nearly 9 h per day to a particular goal is expected to adapt and learn all the necessary knowledge to achieve that success and the fulfilment that comes with that achievement. To quote Paolo Coelo's: *The Alchemist*, "When you want something, all the universe conspires in helping you achieve it" [2].

In the introduction chapter, we will unveil practical applications of world's leading equipment in sports training and recovery. These apparatus are produced by Diamond International Corporation. In detail research presentation will be shown in Chap. 7: Enhanced Athleticism and Lifestyle with Sports Technology (Fig. 2).

In Chap. 2 we will provide all of the essential mathematical preliminaries required for models and research background of the book. This is especially useful

Fig. 1 Jovana Sekulic, World champion in total fitness, demonstrates exercises at the Sports Academy, Belgrade, Serbia

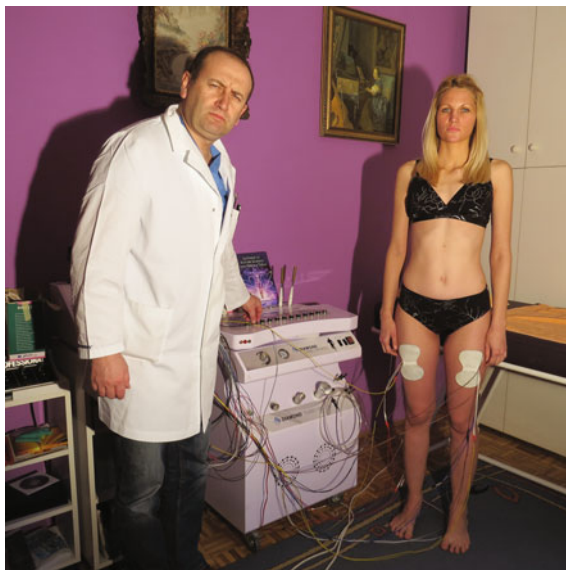


for scientists interested in having a deeper understanding of this subject, or furthering their research in area of biomechanics, orthopaedics and robotics. The research being biomechanical action principle and variational methods, elements of basic elastic continuum and basic dynamical simulations.

In Chap. 3 we are introducing human fascia (which is the Latin word for *bundle*). Until recently, science has failed to acknowledge the essential role that fascia plays within the human body. What happens inside fascia is an intricate process of waste elimination of the cells and tissue. Another reason why fascia is so vital is because it is connected to the lymph ducts and is part of the lymphatic system (Fig. 4).

In Chap. 4, we will be introducing the practical and theoretical research required for the functions of the iliopsoas and the surrounding muscles. In 1965, my close colleague Leon Lukman, an elite pole vault athlete who is currently the founder and head of Belgrade's Sports Academy, was inspired. Arthur Michele's book on the iliopsoas was the source of this inspiration. Lukman began collaborating with Prof. M. Boskovic (from the school of Medicine in Belgrade), where they both researched this mysterious muscle. Lukman used Michele's work to perform vector analysis on Figure 57, which showed movements generated by the iliopsoas in the hip joint. Together these individuals performed a series of EMG-experiments on the leg muscles and thus began their work to advance their understanding of this

Fig. 2 Dr. Zoran Gojkovic, MD, and athlete Tijana Rankovic during pad placement research for the kinetic chain for optimal sport performance



perplexing muscle. In his investigations he discovered that besides the muscle's role as the prime mover for hip flexion, the iliopsoas has six more key functions which are often left unrecognized:

- (i) abduction of the thigh/leg at the hip joint;
- (ii) internal rotation of the thigh/leg at the hip joint (in case of extended hip);
- (iii) lateral rotation of the thigh/leg at the hip joint (in case of previously flexed hip);
- (iv) flexion of the lumbosacral spine (intervertebral joints: L1/L2, L2/L3, L3/L4, L4/L5 and L5/S1—bilateral contraction of psoas major muscles);
- (v) lateral flexion of the lumbosacral spine (intervertebral joints: L1/L2, L2/L3, L3/L4, L4/L5 and L5/S1—unilateral contraction of psoas major); and
- (vi) twisting of the lumbosacral spine (intervertebral joints: L1/L2, L2/L3, L3/L4, L4/L5 and L5/S1—unilateral contraction of psoas major)

However, after Prof. Boskovic passed away, Lukman was, unfortunately, unable to continue his research for a brief period of time. After contemplating where the direction of his investigations would lead him, he began to focus on the theoretical explorations of the hidden functions of the iliopsoas and its surrounding muscles. Within the last decade, Lukman has expressed interest in the fascia (a sheet-like web of connective tissue located under the skin) and how this bodily function connects to sports performance enhancement. In 2010, he began collaborating with Ronald and Helen Greenberg from Diamond Incorporations, which is currently based in Australia. The Greenberg's had also shown interest in research about the fascia and worked to develop a sophisticated technological solution for the fuzz problem common in fascia with their newest machine: "Fascia Fuzz Cleaner".

Fig. 3 Professor Leon Lukman during the pole vault competition



All research presented in this book is supported by practical observations from Dr. Zoran Gojkovic, who is a working Orthopaedic Surgeon from the University of Novi Sad, Serbia (Fig. 4).

In Chap. 5, you will discover what energy food is best for your hormonal balance. Morphologically, we are the closest species to the primate, in that we have almost identical digestive, respiratory, skeletal and muscular systems. However we do not have the same muscle iliopsoas as primates. So our ideal diets as human beings is fruitarianism (only eating raw fruits, melons and berries). Organic and ripe fruits are best. While various systems are similar to primates, our brain and nervous systems are similar to whales and dolphins. There are 100 billion neurons in the human brain but to achieve the best functionality from our brains we need to consume 3 fatty acids: α -linolenic acid (ALA), found in plants, (chia seeds, kiwifruit seeds, flax and hemp seeds), eicosapentaenoic acid (EPA) (from seaweeds and phytoplanktons and not fish because of mercury and other environmental issues) and docosahexaenoic acid (DHA) (recommended use from algae oil rather than fish oil for the same reason as EPA). Both EPA and DHA can be found in breast milk. These are essential for the brain as well as the cerebral cortex, skin and retina. Primates can live without EPA and DHA but humans cannot. Serious problems of the aforementioned organs can often be solved easily with foods containing omega-3 fatty acids. Therefore, the recommended diet for humans consists of 70% of fruits, melons and berries with 10% of vegetables (preferably green ones) as well as sprouts, 10% of seeds, nuts and medicinal mushrooms and lastly, 10% of algae, algae oils, herbs and super foods (these being: camu, maca, cacao, goji berries, acai berries, honey, propolis, msm, coconut oil, schizandra, amla and moringa) (Fig. 5).



Fig. 4 Professor Leon Lukman (*left*) and Dr. Zoran Gojkovic, MD, (*right*) at the Clinical Centre Vojvodina, Novi Sad, Serbia

In the same chapter, we will demonstrate exercises that athletes should do every day. This exercise has been carefully designed by the authors and it covers the most important muscles in the body while also activating fascia tissue and the lymphatic system. Some of these exercises are especially good for developing iliopsoas flexibility and strength, while others include the major muscle groups as well as antigravity positions. From the rehabilitation perspective (after leg injuries and/or surgeries), the bipedal cycling [3] on a stationary bicycle ergometer (see Fig. 6) is the most recommended exercise, as it is performed in fully controllable conditions.

All of these movements are intricately explained with the use of anatomy, physiology and biomechanics (Figs. 7 and 8).

In Chap. 6, the model of the human lymphatic system and its relation to fascia will be presented. This chapter will also give insight on how to enhance one's own athleticism and lifestyle with advanced Sports Diamond technology. This technology includes: lymphodynamic, neuromuscular electrical stimulation (NMES) and oxygen infusion. Sports treatments for recovery and athleticism enforcement are based on the biomechanical kinetic chain that will be elaborated in the following pages.

The worst enemy of every athlete is ignorance. For others, the luck of success is a non-presence of action. Many athletes often practice without trying to understand the science of sports and the rule of winning. The athletes that do this tend to depend completely on the leadership and direction of others.

Fig. 5 Dr. Bojan Jovanovic
lecturing at the Sports
Academy, Belgrade, Serbia



During the Rio Olympics, many people were confused about the circular-type bruises which covered the backs of many athletes, including Michael Phelps and Alex Naddour. Many questions were raised about these bruises and how the athletes had obtained them. Nevertheless, there is a simple answer: the bruises are the result of a Traditional Chinese Medicinal practice called cupping. The procedure of cupping is a simple one and is popular with athletes because it is said to improve blood flow, lymph movement, relax the muscles and advance the flow of qi. However, the results can be fatal if done incorrectly; deep burns can appear on the skin if multiple procedures are done with the cups placed in the exact same places on the skin for each treatment. The most common side effect of cupping is the circular bruising left on the skin. These bruises can last for up to a week, depending on the patient. The bruises reveal how many capillaries are actually being broken when the heated cups are placed on the patients' backs, showing that even if the cupping is done by a seasoned professional, trauma is still being done to the body that could be easily avoided with the following technologies.

Fig. 6 Milan Askelievski demonstrating proper bipedal cycling on a stationary bicycle ergometer



The lymphodynamics technology presented in this book possess the core purpose of cupping (to improve blood flow, lymph, and help speed up muscle recovery), without the consequences of bruising or possible burning. The difference between cupping and this technology is that lymphodynamics has a controlled lymph activation: it cleans the body's toxins and waste materials with a safe, natural, an non-invasive procedure. If this procedure is applied immediately after training or competition, the recovery time the athletes require will be shortened significantly. Lymphodynamics with an oxygen infusion treatment will decrease the recovery time needed for damaged muscles, as well as prevent painful delayed onset muscle soreness most athletes experience the day after performing. All of this is made possible because these procedures will prevent inflammation and increase the blood flow. The oxygen infusion treatment also includes hyaluronic acid and dimethylethanolamine (DMAE). DMAE is naturally produced by the human brain and can be found in algae. It activates the production of choline (precursor of acetylcholine), main neurotransmitter for cognition and human movement (Fig. 9).



Fig. 7 Dr. Aleksandar Lukman, coach of Khimki basketball club, Moscow region, Eurocup winners for 2015, VTB league finalist for 2015, Euroleague Top 16 for 2016. In the season of 2013/14, a record of 33 wins in a row was broken

Whenever the name of the 31-year-old American swimmer Michael Phelps appears in the media, attached is a debate on the same issue: is Phelps the greatest athlete of all time? Or perhaps it is the late, great boxer Mohamed Ali. Or maybe it is the two famous sprinters and long jumpers, Jesse Owens and Carl Lewis. Maybe it is the fastest man on earth: Usain Bolt? But the facts are undeniable: Michael has won 23 Olympic gold medals, 13 gold medals in individual events, and 28 Olympic medals in total.

Our question is: How is it possible for a human being to win 23 Olympic gold medals? Before Michael, the greatest swimmer ever was American Mark Spitz, who won seven gold medals at the 1972 Olympics in Munich (he set new world records in all seven events, which is in itself). From a human fascia perspective, swimmers who exceed at butterfly have the most flexible shoulders. Both Spitz and Phelps have this. However, while Spitz won all of his gold medals in butterfly and freestyle only, Phelps is a universal swimmer; winning gold medals in butterfly, freestyle, backstroke and individual medley. This reflects the universal fascia development in all of the main joints as well as in the feet, by Phelps. Phelps's body-height (193 cm) to body-weight (88 kg) ratio shows that it is not big muscles that are propelling him through water. We suggest that it is the superb use of human fascia which makes him the greatest swimmer ever, and which enables him to win gold medals on his fourth Olympics. While in the case of Simone Biles, her superb fascia qualities are extreme flexibility combined with extreme explosive strength. In the case of Michael Phelps it is his extreme flexibility combined with both aerobic and anaerobic strength-endurance that helps him succeed.

Fig. 8 Dr. Aleksandar Lukman, Head of Sports Academy, Belgrade, Serbia and coach of Khimki basketball club, Moscow region, Russia



Fig. 9 The lymphodynamics treatment on elite athlete Tijana Rankovic under supervision of Prof. Leon Lukman, Sports Academy, Belgrade



In Chap. 5, we will explore the wonders of the human brain and mind. We will delve into the minds frequencies, the development of a healthy attitude, positive expectation and dealing with stress from unexpected situations. We will explore what the athletes need to possess for a stronger mentality. This is how you can achieve a winning state of mind (Figs. 10, 11 and 12).

As famous professional boxer Mike Tyson said ‘Everyone has a plan till they get punched in the mouth’. And everyone experienced this situation sometimes. When



Fig. 10 The lymphodynamics treatment on elite athlete Tijana Rankovic performed by assistant Svetlana Zoranovic under supervision of Prof. Leon Lukman, Sports Academy, Belgrade

Fig. 11 Teodora Burkert at the press conference: Talented young soccer player from Serbia, who unfortunately during world championship in Byelorussia tore her anterior ligament. But with the help of two great orthopaedic surgeons Dr. Miroslav Milankov and Dr. Zoran Gojkovic she is recovering from surgery and preparing for new challenges



Fig. 12 Teodora Burket,
junior soccer champion



this happened, when dreams seemed to be crushed, it is power of bravery and flexibility to adjust what's make champions continue and have great results. Wise Olympian and bestselling author Dan Millman said 'The journey is what brings us happiness not the destination'. His amazing personal story in the book *Way of the Peaceful Warrior* and his mystical experience even filmed in the movie is inspiration for many athletes. After his leg shattered in motorbike accident, being kicked out from Olympic gymnastic team and telling he will even walk with hardship, he succeeded to compete in the Olympics with his gymnastic team and years later to be Olympic champion in trampolining. Another example is Australian triathlon athletes Lorreta Harrop In the book *Winner's Bible* the author Dr. Kerry Spackman described how The Australia Institute of sport suggested after tests her that she has not championship material Luckily she didn't listen and she continue to train with her brother. And then at the top of everything her brother Luke was hit by stolen car during training and died. But nothing stopped Lorreta. She won gold medal in 1999 both International Triathlon World Championship and Triathlon World Cup with her passion and willpower. When you do your calling from your heart universe will find people and circumstances to help you in any situation. So citing Mike Tyson again 'As long as we persevere and endure we can get anything we want'.

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