

1. Callisthenics

From the Longman Dictionary of Contemporary English – 1978

Callisthenics – *n.* bodily exercises intended to develop healthy, strong and beautiful bodies.

1.1 Brain Maps

The development of specific neurological brain maps suitable for Systema work (and in general for health, life, etc.) is essentially one of the master-keys of The System—or indeed any system—but understanding what a brain map is, and the concept of altering existing brain maps in order to create new ones suitable for a specific type of work, is of paramount importance. The actual understanding of this concept alone will save you a lot of time in training.

Firstly, What is a Brain Map?

This is essentially a technical term used by neuroscience to describe a particular set of neurone connections, which are visible in functional MRI scans (to some extent). These neurone connections control certain aspect of a person's musculoskeletal system but may (and do) also involve psychological components.

You have a brain map for your left hand, and one for your right hand, and so on. Any given brain map invariably overlaps with many others and also contains certain psychological components, which can range from emotions to a vague sense of self, to specifically anchored sensations that exhibit with the use of a certain limb or under certain conditions.

This is necessarily a very simplified definition of what a brain map is, but for our purposes and the space limitations of a book covering what is essentially an endless topic, it will have to suffice.⁸

How is a Brain Map Formed?

Essentially our brain maps are formed through painful and lengthy trial and error from birth through to the grave. Unfortunately, our brain, like

⁸ Interested persons who wish to research this aspect deeper can probably do no better than reading the book *The Brain that Changes Itself* by Norman Doidge, M.D. (ISBN 978-0-14-311310-2).

so much of our body, operates on a principle of "use it or lose it", and brain plasticity⁹ tends to deteriorate with age. This is not all bad news. If our brains remained as plastic as they were when we were 2 years old, we would hardly ever learn any new skills to any degree of effectiveness or good usability.

As we learn the "best" way to move or function physiologically, the brain "sets" a bit, becoming slightly less elastic. This way we do not have to figure out every time we enter a dark room what kind of magical ritual of movements we may have to go through to find the light switch.

The down side of course is that because we tend to learn these brain maps mostly throughout the random events of our lives rather than with much conscious effort, they are often not ideal for the specific purpose of close quarter combat. Indeed, in any sport or physical activity requiring accuracy, variations of speed, timing and so on, training is required. Training is essentially the repetition of specific movements or sequences of movements through hundreds or even thousands of hours of work. This is why most martial arts, such as Karate for example, require the endless repetition of specific movements. And, for the most part, all martial arts I came into contact with before Systema tend to focus on this quite extensively, whether it's as structured as in Karate, or in more "organic" arts like Jujitsu. The point is essentially that a technique—be it a punch, kick, lock or whatever else—is learnt and practised on the mat, with a variety of opponents so as to get a feel for how to best apply it in a variety of situations and ranges of variables, such as opponent size, speed, number of opponents and so on.

Eventually, one can become quite good at using such a technique in a variety of situations and with impressive accuracy, speed, and force. Understanding brain maps is really just the first step in beginning to understand why The System makes any particular martial system of close quarter combat more effective than merely this older, tried and tested tradition of endless repetition of techniques.

Brain Maps in Systema vs Brain Maps in other Martial Systems

In most martial systems, the emphasis, as has already been described above, is on the repetition of specific techniques until a highly refined brain map of that particular movement or set of movements is formed in the neurology of the person. This process is familiar to any practitioner of Karate, Jujitsu, Judo, Aikido, Kendo, or really any other martial endeavour I have come across except firearm training as I received it,

⁹ The ability to reform, refine, define, or alter existing brain maps or create new ones.

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which was unorthodox anyway and not commonly experienced by even most people used to firearms.

A highly refined brain map is more efficient for a particular task than a less clearly defined one, and this is basically what differentiates the professional martial artist from the average person when it comes to the delivery of a punch, kick, lock, or hold. The trained person essentially just has a more refined, and thus more efficient and capable, brain map relating to the movement of his fist through space towards a moving target.

The System discovered and developed by the Soviets, however, went a step beyond this. Perhaps a quick way to summarise it is to say that it looked to the restructuring of more fundamental brain maps, those functioning at a lower order of organisational structure. For the sake of argument, if we were to simplify to the extreme and say that Karate is mostly the refining of the brain maps that control the limbs of the human body so as to deliver more perfect movement (strikes) with them, then we would have to say that Systema concentrates more on the refinement of the brain map that controls body movement in general as opposed to simply the higher order brain maps that control delivery of fists and kicks.

By working on improving the brain maps present one or more levels below that used by other martial systems the Soviets made some surprising discoveries. In large part, it is this single concept of refining more fundamental brain maps, which makes Systema such an efficient system, yet also relatively quick to gain effective proficiency in. We will now look at some of the key brain maps relating to Systema.

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1.1.1 - The "Relaxed" Brain Map

Any time spent learning Systema will involve someone telling you to relax. This concept, especially if facing multiple opponents in a real situation, where they may be trying to cause you serious harm, seems counter-intuitive and even foolhardy.

More importantly, from a practical point of view, is that anyone that has undergone any previous training in any kind of martial art or combat system will almost without exception have been trained in using muscular tension and aggression to some extent or other as a tool with which to combat the opponent. In other words, the exact *opposite* of relaxation.

The principle of "relaxation" in Systema applies mostly to the underlying overall neurological attitude (brain map) rather than a specific set of muscles. This requires some extensive retraining in order to function in the way that is considered ideal for Systema practice. Most of the drills in Systema are trying to instill this specific neurological approach into the body. This will be a theme that is recurrent throughout this work and indeed all Systema training, so its importance in scope is fundamental. Before we look at how to achieve this "relaxed neurology", let's explore the reasons why it is so important.

- **Lowered attack signature** - A relaxed muscle tone and corresponding movements do not trigger the instinctive fight or flight mechanisms of the human body, which being mostly unconscious are therefore also very efficient. In a word, a relaxed musculoskeletal tone when executing a movement, even a relatively quick one, does not trigger an instinctive reaction as much as a movement that entails muscular tension. As a result, the strike will arrive on an unprepared body, which causes a huge increase in effectiveness. Studies on the effects of sudden impacts on the human body (including by bullets)¹⁰ and the resulting effectiveness in their stopping the person being hit more or less immediately show an extreme level of difference based on the psychological readiness of the individual in question. Generally speaking, a subject that is hit when not psychologically prepared for it, and surprised by the attack, even if this is not necessarily an ideal strike, will tend to be incapacitated much more than one struck perhaps moderately better but who knew the strike was coming and could prepare psychologically (and therefore physiologically too

¹⁰ See footnote 44 in section 3.2 later.

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at an autonomous level) for the strike. The importance of this point cannot really be appreciated unless real combat has been personally experienced. The fact that you might be ready for a fight in general terms, will not necessarily help you survive a strike that hits you in a completely unexpected location or with unexpected force and direction. Or, as the Russians are sometimes fond of saying, the best strike is not the most powerful, or the strongest, or the biggest. It's the one that works. Hidden in this somewhat humorous aphorism is the reality that a relatively small strike delivered in the appropriate way will incapacitate even the strongest of opponents. A relaxed muscle tone is essential for delivering unexpected and "unreadable" or "invisible" strikes. In part this is why to the untrained eye, Systema videos can appear fake or as if one of the participants is just complying with whoever the "winner" of the demonstration is.

- **Lowered attack signature (part II)** – As will become more evident with the digestion of the remainder of this book, there is also a psychological component to attack signature, and this is even more unconscious (for both attacker and defender), and as such, perhaps even more important for the purposes of landing a movement, strike, etc. so that the recipient is unprepared for it. See also part 7 – The Sixth Sense of the Body.

- **Raised efficiency of movement** – A relaxed muscle tone produces the smoothest movement, with the fastest and most precise delivery, as is well known by any sportsman, be they a tennis player, a golfer, or indeed a martial artist. Retaining this relaxed quality whilst in a combat situation is primarily difficult from a psychological point of view. Hence the training is geared toward making relaxation (both muscular and psychological) unconscious as much as possible, but obviously, if you at least have an idea of what you are trying to achieve, this saves time and improves the results. Most Western students of military hand-to-hand combat science are taught that under stressful conditions fine-motor skills are lost, this being due to the body's general aptitude for gross motor skills only in such situations. This however is not true in the absolute. In fact, when I first came across this idea as it is normally presented even in most elite military academies or sport science institutes in the West, though I had no knowledge of The System at the time, I already had personally experienced the exact reverse of this during at

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least two life-threatening situations. Certain psychologies retain fine-motor skills even under extreme conditions; in fact, in certain cases these are even heightened to almost superhuman efficiency. In some cases, this is either a natural ability or one that at least exhibits under certain circumstances, but it is a skill that can be trained into a person's neurology to varying degrees, and this concept might be considered one of the few true "secrets" of the System.

- **Raised efficiency of delivery** – The most devastating strike is one where a completely relaxed execution then solidifies into an instant tension at the exact moment of impact. By varying to extremely refined degrees where that instant of sudden tension takes place, one can also modify the effects of the strike. This is generally rather more well-known also in other martial arts, such as Karate. However, achieving this is obviously going to be a lot easier if your brain map of movement as a whole is founded as much as possible on relaxed muscle tone movement (as in Systema) instead of only a specific strike being attempted in this fashion, when the rest of your training involves high levels of muscular and psychological tension (which in my experience, most serious or traditional Karate *dojos* encompass).

- **Raised efficiency of reception** – Those of you who may have had an interest in the various space programs of both the Soviets and the Americans might be aware of a set of experiments performed by a medical doctor: U.S. Airforce Colonel and flight surgeon John Stapp.¹¹ Originally born in Brazil, unlike most experimenters on human subjects perhaps, he experimented mostly on himself and did so with a passion that can only be described as that of a mad (but good) scientist, sometimes suffering pretty serious injuries with his research on the human tolerance for rapid deceleration. For some reason, this set of experiments performed in the forties and fifties always comes to mind when I consider the aspect of receiving strikes and surviving them in Systema. The human body can survive a certain level of force by meeting force with

¹¹ It is worth reading up on this singular individual if you can spare the time. With a look one

might ascribe more to an accountant than a daring experimenter, Dr. Stapp nevertheless exhibited uncommon courage and inventiveness. See:

http://en.wikipedia.org/wiki/John_Stapp

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force, and again, this is a principle familiar to martial arts such as Karate to some degree or other. However, beyond a certain point, a tensed human body will actually receive far more devastating injury than a relaxed human body. This is why in car crashes where an occupant is sleeping, the survivability of the sleeping person is considerably higher than that of the awake—and probably screaming and tense—passengers. Similarly, a certain level of relaxation or “give” raises the ability to accept or survive even a powerful strike by several degrees of magnitude. This aspect is covered more fully later under section 3: Strikes (Receiving).

- **Raised efficiency of reception (part II)** – As with the attack signature, there is also a psychological component to receiving a serious strike in a relaxed manner, and this element is one of those that is difficult to describe in objectively measurable scientific terms; however, this benefit can be experienced by any practitioner willing to test it. A good subjective way to describe the effect is that, with the correct psychological relaxation, a certain level of time-dilation occurs for the person receiving the strike. While this is usually considered a subjective experience, as we shall see in more detail in Section 7, there is actually more than a little evidence to suggest it may be a real event.¹²

¹² Interested persons will have to delve through some relatively obscure physics, hard to come by for the most part due in no small part to their secret classification. Something that has been done so efficiently that most mainstream physicists will not necessarily be aware of it, or if they are, will tend to dismiss it as being outdated modalities of conceptualising things like zero-point gravitational vacuum fluctuations. The reality is that this physics actually explains a lot more than either relatively theory or quantum mechanics as it is currently taught, and also includes living systems in its considerations, which the **exact sciences** (physics, chemistry and science in general the way it is taught today, to borrow a turn of phrase from the Russian Physicist Nikolai Kozyrev) do not. The so called “outdated” physics of the 19th Century that referred to an “aether” instead of zero-point vacuum fluctuations, when updated by persons such as Dr. Kozyrev and the similarly gifted Burkhard Heim, actually explain the real world a lot more, and we can refer to them as **natural sciences**, as they take the real observed world into consideration as opposed to abstract, idealised parameters. A secret experiment done by Milton Erickson (the well known hypnotist) over a period of 40 years also tends to support this view. You may also want to review the work of Dr. Rupert Sheldrake on Morphic resonance as

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Given the importance of developing this brain map of overall relaxation then, it becomes easier to understand many of the exercises and drills done in Systema training when this point is borne in mind.

Keep in mind though, that most drills in Systema have multiple layers of purpose, and as such also have multiple layers of understanding for the practitioner. What may at first seem like the most mundane, boring and uninteresting exercise when first starting Systema, will later appear awe inspiring once a student has some clearer idea as to its purpose and benefits, which in general can be verified within a few hours and sometimes even within a single training session if one knows what to look for and what to measure.

As this book is intended as a sort of accompaniment to actual training in Systema, only a brief description of some of the most well-known drills that relate to the formation of this brain map will be undertaken here, along with a brief explanation of the purpose of the exercise with regard to this specific issue. Do keep in mind however that each drill usually has several other purposes other than the one we are currently exploring, and as such, some may recur in other sections of the book.

well as the work (mostly untranslated as of yet) of biophysicist and molecular biologist Pjotr Garjajev. Finally, you may also wish to read some of the work of Harold Aspden, which, thanks to him and his wife, I have been able to collate at <http://haroldaspden.com/>