User Manual

P4 Golf

Neuromuscular Stimulator
V 5.0

EUROPEAN TOUR OFFICIAL SUPPLIER

P4-GO-V50-EN-V10

General Information

The **"P4 Golf"** is manufactured/distributed by VALMED SA, Sion, Switzerland.

The "P4 Golf" is manufactured in accordance with the requirements of European Safety Standards ***EN 60601-1, EN 60601-2-10*** and meets requirements of the American Standards for Transcutaneous Stimulators ANSI/AAMI NS4 – 1985.

The "P4 Golf" is a Class II Medical Device and conforms to the requirements of European Directive CEE 93/42 and holds certificate number Œ 0535.

Read this *Manual Before Using the* "P4 Golf"

Indications

The P4 GOLF offers optimal stimulation for :

- increasing blood flow
- muscle relaxation/pain relief
- maintenance and strengthening of muscles
- increasing resistance to fatigue (endurance)

Contraindications

The use of the P4 GOLF is contraindicated in the following cases:

- Persons with cardiac pacemakers
- Persons with cancer

Warnings:

- Safety of electrostimulation during pregnancy is not established.
- Obtain medical advice in cases of suspected heart problems or epilepsy
- Do not stimulate frontal or laryngeal neck region or temporal lobes.
- Do not apply trans-thoracically.
- Keep stimulator out of the reach of children.
- Do not to wet the stimulator.
- Only electrodes supplied or purchased from Valmed should be used. **Other electrodes could be dangerous for the skin or may not stimulate correctly.**

Table of contents

Official Supplier of Neuromuscular Stimulation Equipment to the European Tour Physiotherapy Unit for 2006.

Manufacturer disclaims any and all liability for damages caused by the improper use of this device.

I. Introducing the P4 GOLF

Congratulations and thank you for purchasing the P4 GOLF. **Your** P4 GOLF will be a true complement to your physical training, helping you to optimize your physical training and hence, enjoy your favorite sport with even more confidence.

When you participate in any sport, it is important to be physically fit, firstly to prevent injuries and secondly to fully enjoy the sport experience without suffering afterwards.

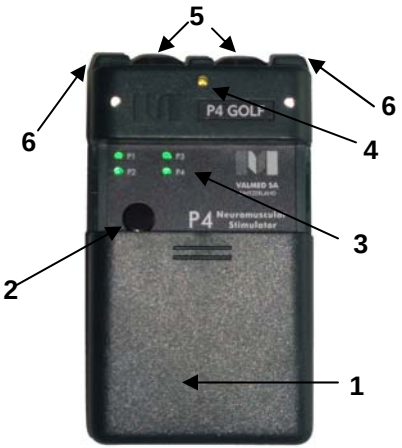
The P4 GOLF is specifically designed for golf players. The stimulation programs have been chosen to meet your needs, for example, improved endurance and strength of quadriceps, abdominal and back muscles as well as warm-up and post-golf active recovery of back muscles.

Good physical training is achieved, above all, by physical exercise (running, stretching, bodybuilding, etc.). In practice it is not always possible to do this. In fact, it is sometimes difficult to combine physical training with work or health problems. It is no secret to anyone: once you stop working out, your muscles fade away very quickly. It is at these times, among others, that your P4 GOLF will help maintain your muscles in condition and accelerate your preparation for physical activity, including golf.

Please Note: The training suggestions provided in this manual are given for a person in good health and average physical condition. Your age, level of physical training or individual objectives must be factored into your personal use of the P4 GOLF.

The P4 GOLF meets all requirements of the IEC-601-2-10 European Safety Standard and the ANSI/AAMI NS4-1985 American National Standard.

P4 GOLF Functional Controls



The P4 GOLF unit has four stimulation program indicator lights (3), a low-battery warning light (4), two cable output sockets (6) and two control knobs (5). The program selection button (2) allows you to choose the treatment program. The protection cover (1) gives access to the program selection button and the battery once it is completely removed. Replace battery when the yellow warning light appears.

II. P4 GOLF USER GUIDE

A. Stimulation Programs

Start of Treatment

1. Make sure that the intensity control knobs (5) are in the OFF position.
2. Connect the electrodes to each cable.
3. Place the electrodes on the motor point(s) of the muscle(s) to be treated. See Section III for placement of electrodes. (If the electrodes do not adhere well, wet their surface sparingly with warm water.)
4. Connect the cables to the output sockets (6) of the stimulator.
5. Switch on the stimulator by turning the intensity control knobs (5) until you hear a click.
6. Select the program by pressing the program selection button (2). If you do not make your selection within the first 5 seconds, Program 1 will automatically start.
7. Slowly turn the intensity control knobs (5) clockwise until you have reached the desired intensity. Remember that to get effective stimulation, the muscle has to contract firmly.

Note: Every program consists of several sequences. Once a program has started, you can automatically go to the next sequence by pressing the program selection button (2).

End of Treatment

1. All four treatment programs have preprogrammed time durations. Once the stimulation automatically stops, turn both intensity control knobs (5) counterclockwise to the OFF position, otherwise the battery will discharge. Should you forget, an audible beep will be heard.
2. Remove the electrodes from the skin.
3. Disconnect the electrodes from the cables and place in the hermetically sealed bag.

Troubleshooting

If the P4 GOLF does not work, please check the following points:

1. Has the battery been inserted correctly ?
2. Have the cable plugs been properly pushed into the output sockets of the stimulator ?
3. Are there two electrodes at the end of each cable ?
4. Are the electrodes no longer sticking well? If so, wet electrode surfaces sparingly with water.

PROGRAM 1: Relaxation of Back Muscles

Type of Stimulation

This program contains four phases:

1. Relaxation, which delivers a train of impulses with varying frequencies between 45 and 120 *impulses per second* (i.p.s) and variation pattern repeating every second (duration: 5 minutes).
2. Endorphinic phase (pain control), which consists of continuous stimulation at a low frequency of 4 i.p.s. (duration: 6 minutes).
3. Cool-down phase characterized by a train of impulses at MUAP frequencies varying from 4 to 83 i.p.s. with an average of 10 i.p.s. (duration: 7 minutes).
4. Analgesic phase for pain control with a train of continuous impulses (bursts) at a frequency of 80 i.p.s. (duration: 2 minutes).

Duration

20 minutes.

Application

Allow tight/stiff back muscles to relax and reduce any associated pain. Use while sitting or prone (on stomach), as preferred.

Frequency of use

Use this program when you wish to relax or when experiencing pain/stiffness in your back muscles.

Instructions for Use

Please refer to the instructions (Start and End of Treatment)

Placement of Electrodes

Please see Section III.

PROGRAM 2: Muscle Strength and Endurance

Type of Stimulation

This program has three phases:

1. Resistance to fatigue (endurance) phase characterized by a train of impulses with 0.7 second MUAP pattern frequencies, repeating every 5 seconds (duration: 60 minutes).
2. Strength/endurance phase that contains a series of 52 muscle contractions alternating with relaxation periods. Each contraction lasts 9 seconds at a tetanic frequency of 60 i.p.s. Each contraction has a 3 second period in which the intensity of the stimulation gradually increases from zero to maximum (ramp), followed by a total contraction of 6 seconds at maximum level. After each contraction, there is an active relaxation period of 21 seconds. During this relaxation period, the stimulation is subtetanic at MUAP frequencies reoccurring every second (duration: 26 minutes).
3. Cool-down phase that contains the same train of impulses as in Phase 1, but MUAP pattern repeating every 2 seconds (duration: 4 minutes).

Duration

90 minutes.

Application

To increase muscle strength and endurance.

Frequency of Use (Minimum)

Use on the quadriceps twice a week before the season begins and once a week during periods of great activity.

Instructions for Use

Please refer to the instructions (Start and End of Treatment)

Placement of Electrodes

Please see Section III.

PROGRAM 3: Muscle Strength and Power

Type of Stimulation

This program has three phases:

1. the warm-up phase characterized by a train of impulses with varying stimulation frequencies with MUAP pattern and repeating every 5 seconds. (duration: 25.5 minutes).
2. the strength/power intensive phase, which contains a series of 22 muscle contractions alternating with relaxation periods. Each contraction lasts 15 seconds at a tetanic frequency varying from 40 to 62.5 i.p.s. Each contraction has a 3 second ramp followed by a total contraction of 12 seconds at maximum level. After each contraction, there is an active relaxation period which lasts 39 seconds. During the relaxation period, the stimulation is subtetanic with MAUP pattern of frequencies, which reoccur every second (duration: 9.5 minutes).
3. the cool-down phase, which has the same train of impulses as in Phase 1 (duration: 25 minutes).

Duration

60 minutes.

Application

Increase muscle strength and power. Also, use Phase 1 for warm-up, prior to golfing.

Frequency of use (Minimum)

An excellent complement to physical training. Use on the quadriceps twice a week before

the season begins and once a week during periods of great activity.

Instructions for Use

Please refer to the instructions (Start and End of Treatment)

Placement of Electrodes

Please see Section III.

PROGRAM 4: Relaxation and Maintaining Muscle Tone

Type of Stimulation

This program has three phases:

1. Warm-up and massage phase characterized by a frequency modulation varying each second from 45 to 120 i.p.s. (duration: 5 minutes).
2. Active recovery phase, which contains a series of 40 muscle contractions alternating with pause periods (30) or active relaxation periods (10). Each contraction lasts 2.5 seconds at tetanic frequencies varying from 40 to 80 i.p.s. Each contraction has a 1 second ramp, followed by a contraction of 1.5 seconds at maximum level. Each pause lasts 2.5 seconds. During the active 12.5 second relaxation period, the stimulation is subtetanic with MUAP pattern frequencies varying every second (duration: 5 minutes).
3. Cool-down phase, which contains a series of 10 muscle contractions alternating with relaxation periods. Each contraction lasts 12 seconds at a tetanic frequency of 64 i.p.s. and is made up of a 3 second ramp followed by a 9 second modulated contraction. After each contraction, there is an active relaxation period lasting for 48 seconds during which the stimulation is subtetanic with MUAP pattern frequencies varying every second (duration 10 minutes).

Duration

20 minutes.

Application

To relieve pain, increase blood circulation and keep muscles toned.

Frequency of use

Use this program to recover after golfing or after physical exercise.

Instructions for use

Please refer to the instructions (Start and End of Treatment)

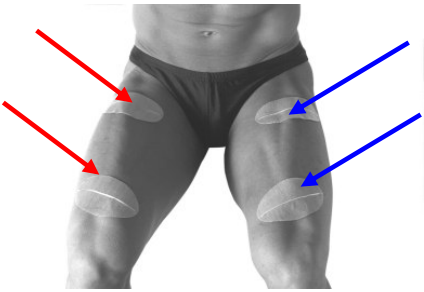
Position of Electrodes

Please see Section III.

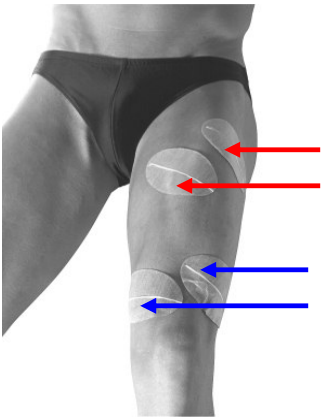
III. Placement of Electrodes

The “P4 Golf” should only be used with the recommended electrodes. Use oval 3” by 5” electrodes for large areas (e.g., leg muscles) and round 3” electrodes for smaller areas such as forearm muscles. Do not use smaller electrodes than recommended above. **Leads for Channel 1 are depicted in RED and leads for Channel 2 in BLUE. Where only one set of electrodes is shown, Channel 1 is depicted but Channel 2 may be used instead.** Channels may be reversed, if desired, from that indicated in the following photos.

QUADRICEPS



On both legs

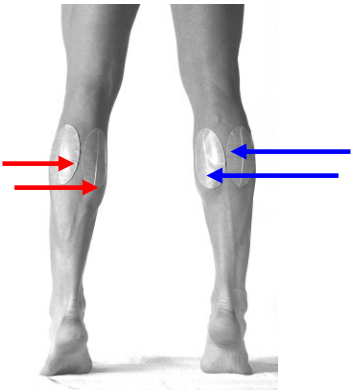


On one leg

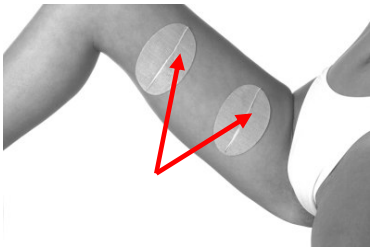
TIBIA

Channel 2 electrodes may be attached to other leg in order to treat both legs

CALVES

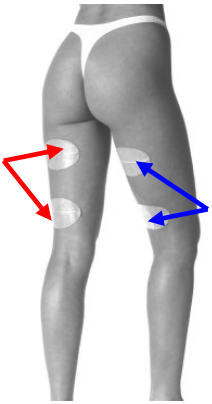


THIGHS

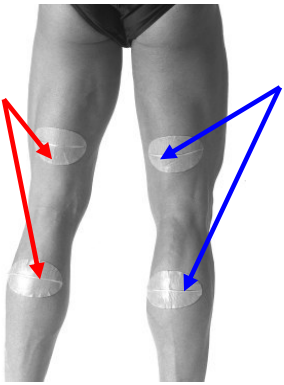


Channel 2 electrodes may be attached to other thighs in order to treat both thighs

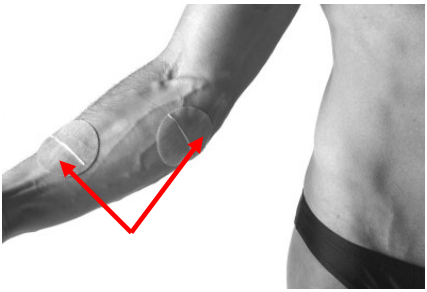
FEMORAL BICEPS



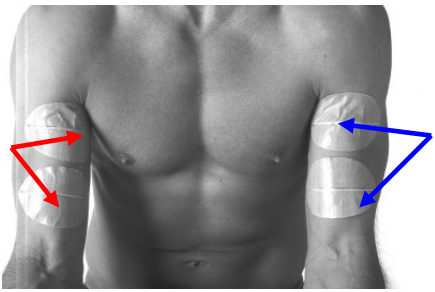
FEMORAL BICEPS AND CALVES



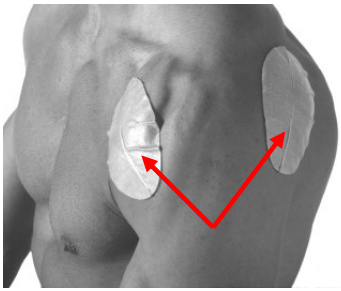
FOREARM



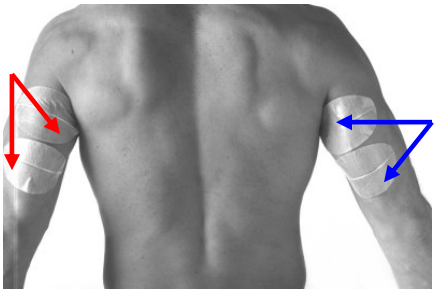
BICEPS



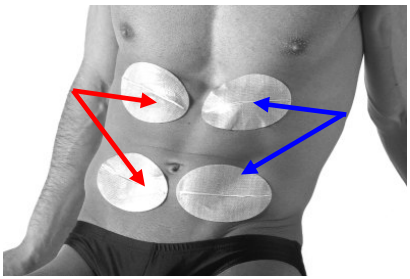
DELTOID



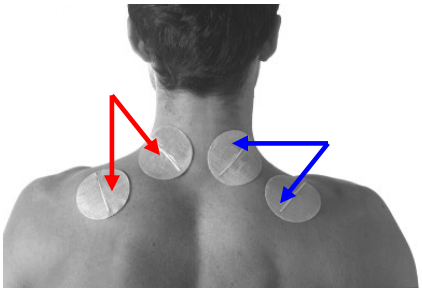
TRICEPS



ABDOMINALS



UPPER TRAPEZIUS



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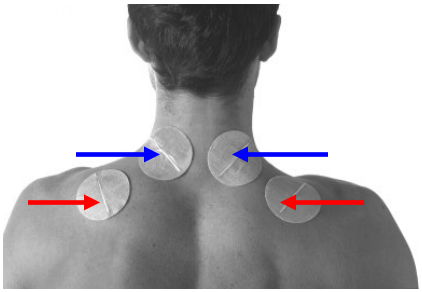
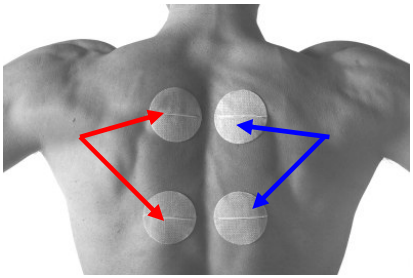
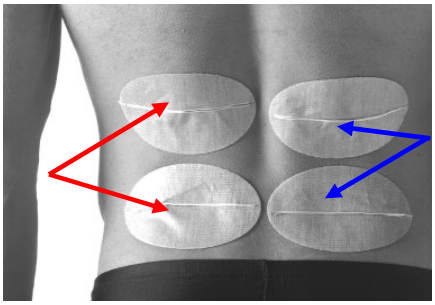


LOWER TRAPEZIUS



LUMBAR VERTEBRAE



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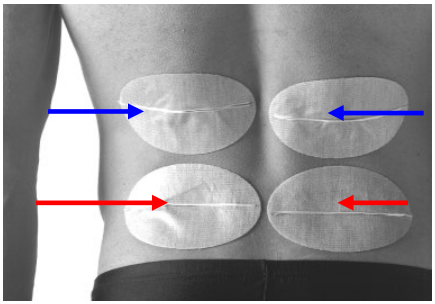
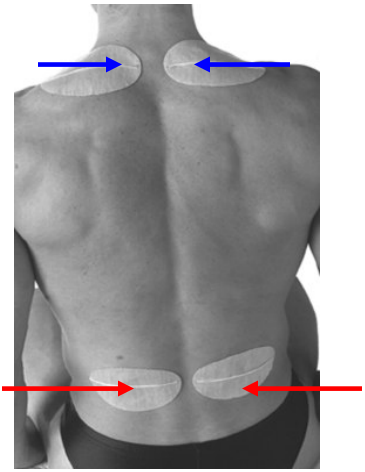


NECK-BACK



IV. TECHNICAL SPECIFICATIONS

Channels:

Two fully isolated channels with independent intensity control knob for each channel.

Output:

Current Waveform (during treatment): Asymmetrical biphasic with fast rise and zero net current.
Voltage Waveform (open circuit): Low voltage, rectangular, compensated monophasic impulse.
Peak Open Circuit Voltage during each Impulse: 50 Vp ±10%.

Maximum Output Rating at 500 Ohm Load:
RMS voltage: 5 V (volts) RMS ± 10%.
Peak current intensity during each impulse: 90 mA (milliamperes) ±10%.

Power Supply:
One 9V alkaline or lithium battery. The output and program parameters are stable throughout the life of the battery.

Controls

One knob per channel for continuous intensity control. Audible click at the OFF position. Safe ON switch. Program selection button.

Indicators

Two green output intensity lights, four program lights, one low-battery warning light .

Standard Accessories

Set of four non-polar reusable self-adhesive electrodes; one 9V alkaline battery; 2 cables; one instruction manual and one storage case.

Size and Weight

Size: 10 x 7 x 3 cm; weight: 175 g net with battery.

Warranty
Two years free replacement, except accessories and shipping charges.

Standard Accessories
A set of four non-polar self-adhesive reusable electrodes, one alkaline 9V battery, two cables and one instruction manual.

Appendix: Stimulation and the Human Body

Human Muscles

Almost all functions of the human body involve muscular activity. These include physical movements of the body, functions of the cardiovascular system, peristaltic movements and bladder control.

Three muscles types are responsible for these activities: skeletal muscles, the cardiac muscle and smooth muscles, all of which have some characteristics in common, but differ significantly in function and performance.

The P4 GOLF neuromuscular stimulator interacts only with skeletal muscles. These skeletal muscles are responsible for the movements of different parts of the body.

The action of these muscles is caused and controlled by nerve impulses transmitted by the brain.

If muscles are not regularly exercised, their performance diminishes, a condition known as muscle atrophy.

Stimulation with your P4 GOLF can compensate for lack of physical activity and maintain muscle conditioning.

Moreover, the P4 GOLF can improve your physical condition! It is therefore a valuable complement to physical training and should be used in combination with regular exercise.

Neuromuscular stimulation improves muscle functions, just like physical exercise. It affects particularly the muscle mechanical properties such as strength, endurance, size, muscle flexibility and muscle cell metabolic functions.

The results are similar to physical exercise results. This occurs since the P4 GOLF emulates the brain by sending analogous electrical signals to the muscles via the motor nerves.

These signals are in the form of impulses which are transmitted to the muscles through the skin by means of electrodes.

To further demonstrate the capabilities of the P4 GOLF, the physiological principles on which it is based as well as research results showing effectiveness of neuromuscular stimulation is discussed below .

Muscle Structure and Physiology

All muscles of the human body have a common structure, but they are different in size and function. Each muscle is made up of several thousand muscle fibers attached at each end to muscle tendons.

When the brain sends impulses via motor nerves, muscle fibers contract, and the force of contraction is transmitted to the bones by the tendons. On a microscopic scale, some several thousand fibers in each muscle are grouped into a single motor unit. Each motor unit is connected to a single motor nerve (neuron) that stimulates the motor unit with the impulses transmitted by the brain. Such stimulation causes simultaneous, that is, synchronous contraction of all fibers in a given motor unit.

The contraction of an entire muscle is the result of the summation of the contractions of individual motor units of this muscle. The contractions of several individual motor units are usually not simultaneous, thus giving the brain the ability to produce gradual contractions of the entire muscle, resulting in perfectly controlled and smooth movements.

Muscle fiber cells contain myofibrils. These myofibrils shorten their length by overlapping their actin and myosin protein molecules, using an electrical impulse called the action potential.

This action potential is triggered by a nerve signal that reaches the neuromuscular junction point between the motor nerve and the muscle motor unit. As a result of this impulse, a neurotransmitter compound called acetylcholine is released, making the muscle fiber membrane permeable to sodium ions.

The influx of sodium ions creates a local electrical current flow that initiates an action potential traveling in both directions on the membrane of a muscle fiber. This action potential causes a contraction of the myofibril that travels in the muscle fiber at a velocity of approximately 5 meters per second.

Therefore, when a 10 cm long muscle fiber is stimulated in the middle, the action potential will reach both ends of the fiber in approximately 1/100 second.

The action potential thus excites and contracts the entire fiber in a very short time. In this example, the action potential travel time also limits the stimulation frequency to a maximum effective value of 100 impulses per second (100 Hz). The maximum effective stimulation frequency therefore depends on the conduction velocity of the action potential and the length of muscle fibers.

Mechanical Properties of Muscles

A relaxed, resting muscle is elastic and stretches easily. The force needed to stretch a muscle increases as the muscle is stretched. The tension developed in the muscle as a consequence of stretching does not increase linearly with elongation but increases exponentially as the muscle is stretched beyond its resting length. This is due to the internal molecular structure of myosin-actin filaments in a myofibril. These filaments slide and bind to each other in rapid and non linear fashion.

This rapid, exponential growth of internal muscle tension explains why muscle injuries are often caused by overstretching or overloading.

When a muscle is stimulated by a single stimulus impulse while extended by a moderate load, it gradually develops internal tension and subsequently contracts. The time of this contraction (twitch) is approximately 6-10 milliseconds (msec) for an ocular muscle, 20-30 msec for gastrocnemius, and from 60 to 100 msec for a soleus leg muscle.

Different muscles thus have different times of contraction. This is due to the fact that they perform different tasks. The ocular muscle, for example, is able to move the eyes very quickly, due to an internal myofibril structure and small size, which facilitates very rapid contractions.

The gastrocnemius muscle serves a locomotion function, such as running or walking, and as such, does not need a special structure for rapid contraction. On the other hand locomotion muscles exert greater forces and are able to sustain repeated tensions (force) over longer periods of time.

The postural muscle like the soleus in the leg work all the time while we are standing and as such they have a different structure which facilitates their long, non-fatiguing contractions.

In general, the motor units of the muscle, and in particular their respective cells can be categorized as follows:

1. Slow twitch type I, very high resistance to fatigue
2. Fast twitch type IIa, non fatiguing
3. Fast twitch type IIb, rapidly fatiguing.

All muscles in the body are a mix of these "fast" and "slow" cells and the proportion of each fiber type in a given muscle determines the properties of this entire muscle, i.e. speed of contraction and its ability to withstand fatigue.

Muscle contraction force depends primarily on the size and volume of the muscle, but is also dependent on the types of muscle fibers in the muscle. Muscles with a predominance of fast fibers, type IIb, are able to exert higher forces than muscles of the same size but with a predominance of slow fibers. The predominance of fiber types is predetermined genetically, but can be also changed by exercise and/or electrostimulation.

Modifying Muscle Properties

Muscle properties are partially due to heritage (genetics) but are not static and can be modified through physical training or by electrical stimulation. It is a well-known medical fact that these changes in muscle properties are caused by the type of stimulation patterns transmitted by the brain to a particular muscle motor unit.

By imposing on a muscle different patterns of activity either by training or stimulation (P4 GOLF), one can therefore change the properties of the muscle.

These changes include increasing the speed of muscle contraction, increasing muscle force and endurance, increasing muscle mass and vascularization, as well as changes in muscle cell metabolism from anerobic to aerobic or vice-versa.

Stimulating Muscles

Muscles receive their stimulation signals from the brain via motor nerves (neurones). While it would be ideal to ²tap² such neurones in order to deliver a muscle stimulation signal from an external stimulator, it is not practical as these nerves are not exposed but buried rather deeply under the skin. The most convenient, least invasive method is to transmit electrical stimulation impulses to motor nerves through the skin. This is done by using transcutaneous electrodes, placed on the skin surface.

The use of transcutaneous electrodes for electrostimulation, however, includes the following trade-offs:

1. Stimulation energy and the issue of cardiac safety.
2. Correct placement of electrodes.
3. Interface between the skin and the electrodes and skin safety.
4. Electrical resistance of the skin and subcutaneous tissues.
5. Voltage values and waveforms used for stimulation.
6. Pain sensation on the skin.

These tradeoffs are now discussed.

1. Stimulation Energy and the Issue of Cardiac Safety

The brain stimulates muscles with very low energy levels. This is because the molecular mechanisms of nerve conduction and of muscle excitation are extremely efficient. For transcutaneous stimulation, however, much higher energy levels must be used in order to overcome the resistances that exist between the stimulator and the muscle.

In the human body there are organs which can be stimulated with electric energy, notably the heart and the brain. In order to avoid stimulation of these organs, energy safety limits for transcutaneous stimulation of muscles and nerves have been established.

In the EC, the standard (IEC-601-2-10) for unattended (home) use of stimulators is an effective current output less than 10 mA (rms) on 500 ohm load, which corresponds to a very low effective voltage of 5 V.

In the United States, in addition to this limit, there is a limit (AAMI/ANSI NS4-85) for each stimulating impulse electrical charge, which is not to exceed 25 µC (microcoulomb = microampersecond) for transchest stimulation and 75 µC for non-transchest application. These energy safety limits were established in order to avoid the risk of cardiac rhythm disturbance.

The P4 GOLF design delivers the most effective stimulation with the best safety margin for the user. The P4 GOLF is one of the very few stimulators on the market that uses minimal energy for stimulation.

P4 GOLF stimulation is effective, with as little as 1 V (rms) and 5 µC, which is 5 times below the above-stated safety margins. This is due to the unique design, which enables the P4 GOLF to reduce resistances between the stimulator, motor nerves and muscles.

2. Correct Electrode Placement

Physical distances between electrodes and motor nerves are obstacles (resistance) for effective stimulation. If this distance is too great, no muscle stimulation may be possible at safe energy levels.

Muscles typically have several hundred to thousands of motor nerves entering as a bundle at the motor point. These motor points are usually close to the skin surface. Motor points are the optimal locations for external stimulation since muscle stimulation at the motor points requires several times less electrical energy than stimulation at any other location on the muscle. Hence, electrodes should be placed on the skin directly over a motor point.

The best approach is to cover the largest possible skin surface with electrodes in order to ensure that all desired motor points are covered. This is easiest to do with large electrodes.

The P4 GOLF electrical signal output is specially tuned to deliver effective stimulation with the largest electrodes available on the market. It is therefore possible to cover more than one motor point and effectively stimulate a group of muscles.

In summary, the larger the electrode surface the more effective is the stimulation. There are very few stimulators like the P4 GOLF that supply effective muscle stimulation with large electrodes. The P4 requires less user skill for electrode placement and as such is simpler and easier to use.

3. The Skin-Electrode Interface

Skin surface-electrode contact (the Interface) is the pathway for external stimulation. This interface is an obstacle (resistance) between the stimulation signals and the muscle motor points. Resistance is normally reduced by moistening the skin with water or by using conductive gels.

Effective and efficient stimulation requires electrodes with minimal and uniformly distributed resistance. Your P4 GOLF is designed to be compatible only with electrodes of this type.

A second P4 GOLF feature is automatic control of the stimulation current. This unique feature prevents excessive current density and ensures skin comfort and safety. The low internal resistance of the P4 GOLF also reduces energy consumption and results in longer, more efficient operations.

4. Skin/Subcutaneous Tissue Resistance

Dry skin has very high specific impedance (resistance) as does subcutaneous fat tissue. Dry skin impedance can be reduced by proper skin preparation and/or the use of conductive gels. Dry skin should be well moistened beforehand and kept moist during the stimulation session.

Skin and subcutaneous tissue impedances can also be reduced by increasing subcutaneous blood circulation before and during the stimulation session. Blood is a relatively good conductor and increased blood flow will result in better, more efficient stimulation.

Increases in subcutaneous blood flow can be accomplished by a hot bath or radiant heat application before stimulation or by stimulation itself. The P4 GOLF increases blood flow in the stimulated area within 5 to 15 minutes during any stimulation program.

Finally, the P4 GOLF impulse waveforms have a very high content of high frequencies, thus penetrating human tissue with much less difficulty than impulse waveforms of competitive stimulators.

5. Voltage Values and Waveforms

The P4 GOLF delivers stimulation impulses with a voltage waveform that is very similar to the action potential waveform in human motor neurons. P4 GOLF impulse waveforms, due to this similarity, are more easily recognized

by the neuromuscular system and have lower stimulation thresholds. The P4 GOLF therefore provides effective stimulation with lower impulse energy.

6. Pain Sensation on the Skin

Our skin pain receptors are activated by external stimuli. Nerves carrying pain signals from these receptors are slightly different in diameter and conduction speed from motor neurons. Nevertheless, they can be activated by electric impulses if the stimulation threshold is exceeded.

Truly effective stimulation maximizes results without undue pain. The waveforms of the P4 GOLF and the low impulse energy make such stimulation possible. In contrast to many competitive stimulators, the P4 GOLF stimulation session constitutes a virtually painless and rather pleasant experience. With the P4 GOLF, virtually no pain receptors in the skin are activated. However, if stimulation is done at maximum intensity and for a long time, some latent muscular pain can occur due to the intense exercise. This is a healthy sign proving that the stimulation session was equivalent to vigorous physical training.

Stimulation as a Complement to Physical Training

While regular and moderately intense exercise is undoubtedly most beneficial for the human body, it is not be always possible. As a result, during relatively short periods of inactivity - a few days or weeks, the muscles in the human body lose their force and resistance to fatigue.

If a physical exercise is not intense enough or not regularly performed, the muscles lose their mass, strength and endurance. This is particularly noticeable in the largest muscles responsible for locomotion, such as the quadriceps or gluteus (buttocks), and in postural muscles such as the abdominal or paravertebral (back) muscles. Therefore, it is essential to exercise or stimulate muscles regularly to keep them in good form.

The P4 GOLF is the best way to retain physical condition during periods of little activity or physical training.

Electrostimulation for Pain

Electrostimulation allows muscle fibers to relax (relief from soreness effects), which is beneficial after physical exercise. This effect can also be antalgic (pain relief) by decreasing pain from overworked muscles.

Your P-4 GOLF: The Most Effective Neuromuscular Stimulator

Most stimulators sold for electrostimulation are capable of delivering only the first component of a brain signal, i.e. a stimulus to the muscle to contract mechanically. This is due to the fact that these stimulators deliver stimulation at fixed frequencies for periods of contraction and deliver no (zero) stimulation for periods of rest. While such stimulation is adequate to cause the mechanical movement of a muscle, it carries little information to effect trophic (desired) changes in a muscle cell.

It is a well-known fact that in order to transmit information, modulation is needed in the carrier signal. The fixed frequency stimulation constitutes a carrier signal, but it lacks modulation, which carries the information content.

What is unique about the P4 GOLF is that it contains the carrier, (fixed frequency) signal as well as the modulation, just like brain signals.

The P4 GOLF is thus capable of transmitting complete information to the muscle in order to effectively change its trophicity and in effect **train** the muscle to obtain desired performance.

Your P4 GOLF is an extremely effective complement to exercise in order to help you improve muscle performance, warm-up prior to physical activity (such as golf) and to allow your muscles to rapidly recover after intensive exercise or activity such as golf.