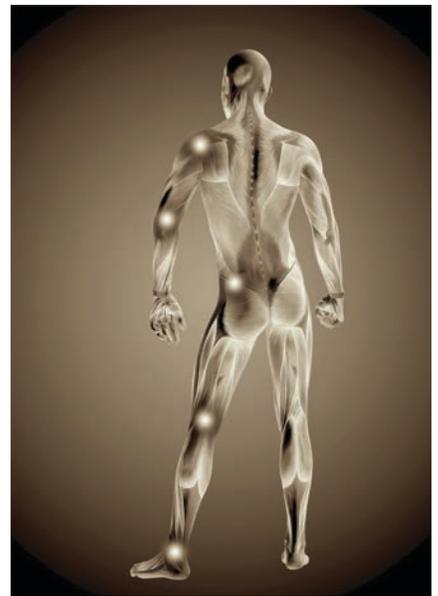

NEXT GENERATION REGENERATION



GOLDIC®

ORTHOPEDICS
SPORTS MEDICINE





GOLDIC®

STAY IN MOTION

The field of „Sports Medicine“ focuses on the prevention and treatment of typical sports diseases and sports injuries.

Sports injuries are injuries sustained by athletes in the performance of their sport or as a result of sport. One distinguishes between acute sports injuries and chronic sports injuries (stress injuries).

Different sports have a characteristic spectrum of sports injuries. They are based on specific movement and stress patterns. Depending on the sport, age and gender, a different frequency and localization of sports injuries.

Whether in private or professional life, football, tennis, golf, athletics, skiing or cycling: an injury has happened quickly, even with the appropriate care and preparation !

For everyone, whether craftsmen, managers, sports beginners or professionals, the same wish usually applies: to get fit and efficient again as soon as possible.

In the search for optimal, speedy recovery and quick return to everyday life, work and sports, **GOLDIC®** medical devices can help the treating physician achieve these goals.

The most common sports injuries are muscle injury, joint injury, anterior cruciate ligament rupture, knee injury, ankle injury, Achilles tendon rupture, shoulder joint discomfort, tennis elbow, golfer's elbow.

The most commonly affected sports are football, alpine skiing, handball, tennis and volleyball.

Many sports diseases and injuries can be treated without surgery.

EXERCISE IS THE BEST MEDICINE

PHYSICAL STRAIN

Ski thumb, tennis elbow & Co. Almost every sport knows a typical disease named after her. Often it is because of physical overload.

Excessive stress symptoms in competitive and recreational sports is becoming increasingly common, with more and more people doing sports. Wrong or over-training can lead to typical complaints that are often named after their appearance in certain sports. Just think of the famous „tennis elbow“.

Everyone knows this term „tennis elbow“. This tendonitis or epicondylitis of the forearm eventually occurs in non-tennis players. In racket sports, the grip size of the sports equipment is often considered to be the decisive cause. But even by a wrong arm position in the profession (writing, gardening, etc.) or even by a wrong sleeping position, this inflammatory disease can be triggered.

Typical symptoms include pain and tenderness on the lateral side of the elbow, pain or weakness in grasping or twisting the wrist, and pain associated with lifting objects.

Tennis elbow is a common injury that will usually heal with minor treatment, but you have to give it time and rest. The same symptoms occur in the „golfer’s elbow“, but here is the overload of the forearm flexor muscle on the inside of the elbow joint responsible.

For both acute and chronic conditions (persistence of symptoms over an extended period of time), **GOLDIC®** can provide a successful treatment alternative. The most common cause of chronic sports injuries are overuse or overwork and not cured, acute injuries. There are still chances of healing.

Other typical repetitive stress injuries in sports where **GOLDIC®** medical devices are used are:

- **Plantar fasciitis**
- **Achilles tendinopathy**
- **Knee arthritis**
- **Patellofemoral pain syndrome**
„runner’s knee“
- **Spinal deterioration**
- **Shoulder impingement syndrome**
- **Tendovaginitis**
- **Carpal tunnel syndrome**
- **Baker cyst**

GOLDIC® medical products help the treating physician in the enrichment of anti-inflammatory and regenerative proteins, as well as the activation and differentiation of the body’s own stem cells. In this case, the serum prepared from the patient’s own blood is injected into the corresponding “defect site”.

The healing process is accelerated, the patient is faster pain-free and earlier physically fit.



REGENERATION

MUSCLE INJURIES

Muscle injuries account for about 30% of all sports injuries. Their importance is often underestimated, so it is not uncommon for a minor, untreated muscle injury to result in a subsequent major injury. The consequences are long training and competition breaks, sometimes even permanent damage.

The healing process can be supported and accelerated by medical measures that are also used in professional sports.

Muscle fibre tear

Poor preparation, lack of warm-up, lack of stretching, sudden muscle exertion, but also an unresolved injury or dysfunction (such as muscle strain) can result in the rupture of one or more muscle fibres.

The symptoms are easily recognizable. A stab-like pain in the musculature, without a warning sign; typically for sports requiring explosive movements (sprint or jump disciplines, ball sports, etc.) especially in the event of sudden stopping and braking, rapid acceleration or a combination of both.

A torn muscle fibre always shows an accompanying hemorrhage into the muscles (hematoma); depending on the severity, a more or less large depression in the muscle progression can be felt.

Such an injury requires immediate sport termination and immediate therapeutic action. This treatment usually takes place according to the so-called **RICE** rule:

- R** = Rest
- I** = Ice
- C** = Compression
- E** = Elevation

How long an injury takes to heal can best be judged by an experienced sports doctor. It is important not to strain the injured muscle too early and too much.

„An essential goal of the treatment of musculoskeletal injury is the reduction of swelling, pain relief, inflammatory regulation and the promotion of wound healing.”



In all wound healing processes, cells of the immune system with its network of cytokines are involved in different ways. Thus, the messengers of the immune system are able to stimulate tissue regeneration by controlling cell growth and stimulating differentiation, cell metabolism and protein synthesis.

The aim of treating muscle injuries with **GOLDIC®** medical products is the regeneration of the damaged tissue with a faster wound healing and without scar formation.

SPORT INJURIES

Sport is the number one recreational accident in people under the age of 30.

Physical activity has far more positive health effects than risks. An important aspect of sport is to challenge and promote your body.



ACHILLES TENDONITIS

The Achilles tendon is the strongest tendon of the human body and was already in Greek mythology as the weak point of otherwise invincible Achilles (Achilles heel).

The function of the Achilles tendon is the flexion of the ankle, which means that the forefoot is pulled down forcefully. This movement is essential for kicking the foot while walking and running. The Achilles tendon is exposed to enormous loads. Above all, the dynamic peak loads in sports that endures the tendon, are admirable.

Achilles tendon complaints can be persistent, and an inflamed or injured Achilles tendon must be treated for its cause in the long term to relieve or eliminate the symptoms. The reasons for acute pain and irritation of the Achilles tendon lie in the anatomy: The Achilles tendon is surrounded by a thin layer of tissue and slides on movement in a kind of tube (tendon sheath) of several membranes. To protect against friction are between the tissue layers gelatinous compounds on which the resilience of the tendon depends. The more lubricious the membranes, the lower the risk of injury.

Acute inflammation of the Achilles tendon and surrounding mucosa (achillodynia) is a typical running injury. It often occurs at too high training intensities of the athletes, which increase the training scope and / or the intensity too fast. Ambitious athletes can tell you a thing or two about that. The typical symptoms are: pain, swelling and overheating of the tendon. The athlete typically feels a discomforting pinching in the tendon area and a strong pressure sensitivity of the affected area. The tendon and the surrounding tissue may swell, often the thickening is also palpable and the affected area is overheated.

In chronic Achilles tendonitis there is a palpable knot formation by scarred tissue in the tendon. This chronic inflammation causes constant pain and over time leads to a weakening of the Achilles tendon (calcification), which can subsequently cause a tear of the Achilles tendon.

In each healing phase, different cell types play decisive roles of varying importance. All processes involved are closely interlinked. The healing phases are not simple linear processes, rather they interlock. They can not be separated chronologically or spatially, and **GOLDIC**® medical devices support these processes.

GOLDIC® supports the proliferation of tissue cells to promote the regeneration of the tissue matrix.

PERSONALIZED SPORTS MEDICINE TECHNOLOGY OF THE FUTURE ?

Individualized medicine is considered the megatrend that will change the current health care sector completely, and at a rapid pace. The idea here is: the treatment of the patient should be carried out taking into account his individual circumstances. Of central importance in sports medicine will be an integrative approach in the interests of the patients, in which the treating physician, physiotherapist and / or trainer work together in an interdisciplinary and closely networked manner, thus meaningfully sharing valuable innovations.

GOLDIC® medical devices assist the physician in their individual therapy of the patient with the body's own important cytokines and growth factors of the enriched serum. The self-healing powers of the body are used, thereby enabling a largely side effect-free treatment. The prepared serum is injected into the corresponding „defect site“.The healing process is accelerated, the patient is faster pain-free and more resilient.

“Sports medicine represents the endeavor of theoretical and practical medicine to analyze the influence of exercise, training and sports as well as the lack of exercise on healthy and sick people of all ages, in order to make the findings of prevention, therapy and rehabilitation useful to the sportsman.”

**Professor Wildor Hollmann, Honorary President
of the World Association for Sports Medicine**

The applications of autologous blood therapies have become increasingly popular in recent years due to positive results in sports and practice. Possible applications for **GOLDIC®** are:



- **Tendon diseases at the knee, at the ankle (Achilles tendon), at the elbow (e.g. tennis-, golfer's elbow), at the shoulder (e.g. inflammation of the shoulder bursa), etc.**
- **Ligament and muscle injuries**
- **Disc herniation**
- **Cartilage injuries and arthrosis**
- **Enthesopathies (e.g. heel spur, Haglund's deformity, etc.)**
- **Cysts and ganglia (e.g. Baker's cyst)**
- **Entrapment neuropathy (e.g. carpal tunnel syndrome)**

INTELLIGENT TISSUE REGENERATION

The GOLDIC® - SET 4 ORTHO & SPORT includes the following parts:

4 pieces Blood Collection System - BTS - (incl. designed gold particles)

4 pieces Serum-Application-System – SAS - (incl. special filter)

1 piece Butterfly needle for blood collection

1 piece 3-way-tap to connect the BTS-tubes

Labels

Treatment with **GOLDIC®** consists of taking blood and four additional appointments for each administration of the processed, body-own serum. For detailed medical advice, please consult your doctor. The doctor of your choice will advise you on the possibilities, risks, benefits and costs in the context of a personal discussion and on the basis of an individual assessment.

Treatment



Blood Collection

The blood is taken in the usual way, takes only a few minutes and is performed while sitting or lying down. In a first step, the blood in the vein is stowed with a contractile strap. Subsequently, the planned puncture site is cleaned with a disinfectant to prevent infections. With a fine, hollow needle (cannula), the puncture is made in the vein. The individual **GOLDIC® tubes** are placed on the needle and then filled with blood. After filling the 4 tubes, the stasis is released again, the needle pulled out of the skin and glued the puncture site with a pressure plaster.



Serum Preparation

After slowly and carefully aspirating the blood into the **GOLDIC® BTS-tubes**, these tubes will be stored in an incubator for 24 hours. They are then centrifuged to separate the serum enriched by the designed gold particles from the other blood cells. This conditioned serum is then provided for injection into the patient.

No anticoagulants (coagulation medicines) are used..



Injection

The first injection of the body's own serum usually takes place the day after the blood collection. A special filter prevents the serum from getting the gold particles into the body of the patient. In general, a total of 4 injections of the prepared serum at a distance of 3-7 days are made by the attending physician. The prepared serum is stored in the prepared tube at -18 °C in a freezer until the next treatment.



Possible Side Effects

Locally, it can come at the treated site, to short-term side effects such as warming, redness and swelling. In rare cases, hypersensitivity reactions have been observed.

The doctor of your choice will advise you on the possibilities, risks, benefits and costs in the context of a personal discussion and on the basis of an individual assessment.

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This brochure serves as information material on the application possibilities of specific ArthroGen products and technologies. The contents of this booklet are not a recommendation for a particular treatment. Healthcare professionals should act according to their education and experience, and may seek medical literature or instructions for use. Within the freedom of medical treatment and based on a risk-benefit analysis, the attending physician is solely responsible for the fact that the use of ArthroGen GOLDIC® products is indicated for the respective patient.

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