Rheumatoid Arthritis. Active living.
A patient handbook about Rheumatoid Arthritis.
“Knowledge is power”, as the saying goes – and this wisdom is particularly true where chronic illnesses such as Rheumatoid Arthritis are concerned. The inflammation which accompanies this illness can cause numerous complaints, ranging from persistent morning stiffness via painful and swollen finger or toe joints to severely impaired mobility. Very rarely, even internal organs such as the heart or lungs can be involved.

But knowledge is also the best thing against fear and the feeling of being powerless against an illness. Those who are affected by this illness therefore need a lot of information – from symptom triggers in the immune system to the entire range of modern treatment options, and last but not least, also offers for exchanging experiences with other patients in self-help groups. Those who are informed are best equipped to learn how to manage their illness and actively and specifically handle the associated complaints and restrictions.

This brochure is intended to contribute to informing you. It contains many important and current facts about the subject of Rheumatoid Arthritis.

Dear patient!

Just one more thing before closing: Owing to medical research, therapy for Rheumatoid Arthritis has made major advances in recent years. Particularly since the introduction of a new group of medications – the so-called biologics – to therapy, it is often possible to stop the illness nowadays. This avoids damage, and is also able to bring about significant improvements in severe illness.

Therefore the information in this brochure should not only increase your knowledge about the illness, but also give you the courage to expect a lot from modern rheumatism therapy and not be satisfied with modest improvements!

Wishing you good reading and rapid healing,

Yours truly,

Professor Dr. med. Markus Gaubitz

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Information on the disease.
The most important information about Rheumatoid Arthritis clearly summarized.

What is Rheumatoid Arthritis?
Rheumatoid Arthritis (abbreviation: RA) is a chronic inflammatory disease in which several organs or organ systems may be affected. One therefore also speaks of a systemic disorder. As the name says, however, the joints are primarily affected: Arthritis means joint inflammation. The previous name “chronic polyarthritis” indicates that many (“poly”) joints are usually affected.

Many other forms are also possible. RA is a relatively severe form of an entire group of chronic inflammatory (joint) diseases which are frequently summarised under the umbrella term of “rheumatism”.

How common is Rheumatoid Arthritis?
RA is the most common inflammatory joint disease; approximately 0.6 – 1 % of the population are affected by it. In Germany, this amounts to approx. 800,000 patients. One new illness for every 2,000 residents is expected per year.
Who is affected?
In principle, RA can occur for the first time at any age. Most people develop the illness between the 40th and 50th year of life. But RA can also occur in children and adolescents. This form is termed Juvenile (youth) Idiopathic Arthritis. Women are affected approximately three times more frequently than men. The cause of this imbalance is not known.

How does Rheumatoid Arthritis develop?
Investigations of affected families have shown that an inherited predisposition plays a role; that is, the risk of illness is increased when a close relative is already ill. But external influences also seem to be significant as possible triggers. This particularly includes infections with viruses or bacteria, which not seldom precede the development of RA.

The causes and development of RA are not fully explained. However there are numerous indicators. It is assumed that it is based on a dysfunction of the immune system. RA is regarded as a so-called autoimmune disorder. This means that the immune system, which normally defends against infectious organisms and other foreign bodies, also classifies the body’s own tissues as “foreign” and produces antibodies against them. Thus, the body attacks itself in certain locations, e.g. on the inner joint membranes, which can lead to inflammation, swelling, pain and tissue damage.
What happens in the joints?
RA affects joints (so-called synovial joints) in which the involved bone surfaces are covered by a layer of joint cartilage and surrounded by a fluid-filled space (joint cavity). The joint cavity is lined by the synovial membrane (synovium), a thin layer of connective tissue. This inner joint membrane produces the thickly viscous synovial fluid (synovia), which provides lubrication to reduce friction between the bones.

In the further progression of the illness, the overgrowing connective tissue (pannus) increasingly spreads to the joint cartilage, and, ultimately leads to permanent damage to the cartilage and adjacent bone.

What role is played by the messenger substance TNF-α?
Tumour necrosis factor alpha (TNF-α) is a naturally occurring messenger substance (cytokine) of the immune system which plays a major role in inflammatory processes of RA and other inflammatory rheumatic disorders. It has numerous effects, but primarily supports inflammation (pro-inflammatory). In RA, TNF-α is detected in affected joints in large amounts. There, it is produced by certain cell types (macrophages, lymphocytes) which fulfil specific tasks in the immune system.
What are the typical symptoms of the disease?

In RA, several joints are usually inflamed at the same time. Typically, it affects small joints, particularly the finger base and middle joints and the toe base joints. In principle, however, any joint can be affected. But it very rarely affects the finger end joints.

In the further progression of the illness, there is usually advancement with an increase of the affected joints. The inflammation then often attacks the larger joints on the hands, arms (elbow, shoulder), feet and legs (ankle joint, knee, hip). Generally, the joints or joint regions are affected in both body halves at once; this is called a symmetric affliction pattern.

The inflammatory damage to the joint cartilage and bone may finally lead to joint deformity and impairments ranging to loss of mobility when treatment is too late or insufficient.
Typical complaints include pain and swelling of the affected joints, wherein the soft tissues adjacent to the joint may also be swollen. Patients often also feel overheating and burning in the joints. The influence of cold (e.g. cold water) brings improvement. Characteristically, the complaints tend to occur more while at rest and improve with movement.

Some patients have small palpable nodes under the skin, particularly in the region of the elbow and wrists. These so-called rheumatism nodes are formed by inflammation of the connective tissues and provide an important diagnostic indicator.

As an illness of the entire body, RA can be accompanied by tiredness, fatigue, a general sensation of illness, loss of appetite, weight loss and lack of drive ranging to depression. In particular, acute episodes with high illness activity are often accompanied by elevated body temperature or even mild fever.

Apart from the joints, other organs or organ systems may also be affected; one also speaks of extraarticular (outside the joint) manifestations. This includes inflammation of parts of the locomotor apparatus (tendon sheaths, bursae) and internal organs such as the heart and lungs, blood forming system, lymphatic tracts, nerves or blood vessels. This may lead to considerable complications.

“Rheumatoid Arthritis is often recognised very late for several reasons: In the early phase, it is often not shown in a very typical form. The patient tends to be more affected by general symptoms and maybe occasional joint complaints. Here, the thought of RA is not likely either for the patient or for the family physician.”
Professor Dr. Markus Gaubitz
How does Rheumatoid Arthritis progress?

The start and progression of RA illness often varies greatly from patient to patient. The illness may start very suddenly with acute complaints, or gradually with non-specific symptoms which are not necessarily typical for RA.

In a large share of affected persons, the illness progresses with advancement and in stages; that is, the complaints increase through the years. Phases of varying length may lie between them, with reduced illness activity.

The severity of the illness in individual patients cannot be definitely predicted. The only way of favourably influencing the illness progression and any late consequences consists of early diagnosis and corresponding rapid, specific treatment.

While RA was formerly regarded as incurable, treatment successes have noticeably improved in recent years. Due to modern effective treatment approaches, there are now good chances of returning to a state of being largely – and in favourable cases, even completely – free of complaints (remission).
Information on the disease

Important criteria which may indicate the presence of Rheumatoid Arthritis

- Morning stiffness for at least an hour over a period of at least 6 weeks
- Inflammation (arthritis) of at least three joints over a period of at least 6 weeks
- Inflammation (arthritis) of the finger base and middle joints and toe base joints over a period of at least 6 weeks
- Symmetric joint affliction pattern (that is, on both body halves) over a period of at least 6 weeks
- Rheumatism nodes
- Detection of rheumatism factors in the serum
- Detection of typical changes of finger and wrist joints in x-ray images

At least 4 out of the 7 criteria must be fulfilled for a diagnosis of RA.

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“Morning stiffness” of the joints is also a typical sign: The joints appear stiff and immobile in the morning or after longer rest periods. This state may last from a few minutes to several hours.
How is Rheumatoid Arthritis diagnosed?

Precisely at the start of the illness, it is not always easy even for experienced rheumatologists to provide a definite diagnosis of RA, particularly if the symptoms are very uncharacteristic. At the beginning, even some typical laboratory parameters may still be normal. The diagnosis of RA is largely based on the following three factors:

+ Detailed questioning (medical history), general and specific physical examination with special consideration of the joint status by the physician
+ Examinations using imaging procedures
+ Lab tests

Important criteria for the diagnosis of RA were already compiled by experts in 1987 and still remain valid today (see page 17). Meanwhile, however, diagnostic options have been expanded by additional procedures. The following text briefly explains the most important examination options.

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The joint status is used to record and rate the illness activity using the so-called Disease Activity Score (DAS). The DAS28 results from the number of joints which are swollen and painful on pressure (out of 28 examined joints, therefore DAS28), the ESR after 1 hour and the parameter for assessing illness activity by the patient, using a scale. DAS28 values below 3.2 mean well-controlled illness activity. Values over 5 indicate increased illness activity. In this case, the option of intensifying therapy should be discussed with the physician.
Lab parameters

- **Erythrocyte sedimentation rate (ESR)**
  This is the speed with which the blood corpuscles (blood cells) drop in a vertically standing measuring tube which is filled with blood. After one or two hours, a reading is taken to determine how many millimetres per hour the blood cells have settled down. An elevated ESR indicates that an acute or chronic inflammation process is taking place somewhere in the body.
  However, this is a very non-specific measuring parameter, since it does not show where the inflammation is occurring. The ESR is usually, but not always, elevated in RA.

- **C-reactive protein (CRP)**
  This is a protein substance whose concentration in the blood serum may rise up to 1000 times within a few hours in specific inflammatory processes. The serum CRP level is characteristic for the extent of inflammation and progression of the illness. It rapidly drops when there are improvements, indicating the success of therapy. However, CRP levels are not always elevated in RA.

- **Rheumatism factor (RF)**
  Rheumatism factors are antibodies which are directed against the body’s own antibodies (immunoglobulins); they are therefore also called autoantibodies. They are detectable (positive) in the serum in some, but not all chronic rheumatic disorders. In RA, the RF is positive in the first half year in approx. half and later in approx. two thirds of patients. In rare cases, it is also detectable in healthy persons or patients with liver disorders.

- **Anti-CCP antibodies (= antibodies against cyclic citrullinated peptides)**
  Testing for these proteins is a relatively new procedure which is very specific for RA, particularly in combination with detection of an RF, and is detectable even in early stages of illness.
“Any persistent joint swelling and any long-term joint pain as well as impaired general wellbeing should no longer be accepted in the future, but should be cause for the patient to see the physician.”

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Information on the disease

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Imaging procedures

- **X-rays**
  Using customary (conventional) x-ray images of the joints, the most important changes or damage to cartilage and bone can be shown, such as bone defects (erosions) and narrowing of the joint gap between the bones which are part of the joint. However changes in the surrounding soft tissues are scarcely recognisable by this method.

- **Magnetic resonance tomography (MRT, core spin tomography)**
  The MRT, which can be done with or without a contrast agent, can show all structures of the tissues with inflammatory changes, including soft tissues (e.g. inner joint membrane, tendons). In particular, early changes are better recognisable / recognisable earlier on than with x-rays.

- **Joint sonography (arthrosonography)**
  This ultrasound-based procedure serves particularly well for detecting inflammatory processes in the inner joint membrane. It is therefore gaining increasing importance in diagnostics and progress check-ups of RA.

What other illnesses can be similar?

Many other illnesses can also be possible causes for the complaints, particularly because the symptoms of RA are often very non-specific at the outset. It is the physician’s task to take all available information and diagnostic indicators into account in order to delimit the various illnesses and obtain the right diagnosis as early as possible.

The most important illnesses which must be delimited from RA include degenerative joint disorders (arthrosis), gout, ankylosing spondylitis (Bechterew’s Disease), arthritis with psoriasis (Psoriatic Arthritis), infection-related joint inflammation (e.g. Lyme’s arthritis) and many other inflammatory or chronic disorders of the joints and connective tissues.
The most important treatment objectives for RA are to relieve pain, stop joint destruction and preserve joint function. While it was, at best, formerly possible to reduce complaints, modern treatment options now mean that there are good chances of obtaining extensive or even complete correction of the illness symptoms (remission) and thereby, a state with no complaints.

Certain check-ups should be done at regular intervals in the course of treatment to an illness to detect possible side effects and/or find out whether the patient is responding to therapy. Recording the DAS28 (see page 19) is particularly important for monitoring and verifying therapy success as a measure of the illness activity, as well as monitoring the diseased joints with imaging procedures.

If a treatment method does not show sufficient efficacy after several months, the physician must change the therapy.

Treatment generally consists of several different therapy methods, the most important of which are explained hereinafter.
Medicamentous therapy

Since RA is an illness which can affect the entire body, medications are generally given internally (systemically) to obtain, if necessary, an effect throughout the entire body. Local treatment measures on the joints can also be helpful.

Among the medications for treating rheumatic disorders, there are four main substance groups. They have different effects and thereby also different therapeutic objectives.

One can fundamentally differentiate between two approaches: treatment with medications which only act against the symptoms, particularly pain, and the use of products which – more or less – also intervene in the illness activity or favourably influence its progression (illness-modifying medications).

Various active substances are often used at the same time or in combination.
The effects of cortisone start within a few days and thereby significantly more quickly than base therapeutics (see the following chapter). However, the symptoms and inflammation-related changes in the blood may recur after the medication is stopped. Furthermore, cortisone alone is not able to stop the changes due to chronic inflammation on the joint cartilage or bones.

Due to side effects, cortisone products can only be used in the short term (e.g. during an episode or at the start of therapy) in high doses. They are very low dosed in long-term use. In the presence of acute and severe joint inflammation, glucocorticoids can be injected directly into the joint (= intraarticular) in the form of a crystal suspension to obtain rapid relief of pain and swelling. However this procedure is only suitable for individual joints.

**Cortisone-free anti-inflammatories**

Cortisone-free anti-inflammatories (NSAR = non-steroidal antiinflammatories, antiphlogistics) are primarily anti-inflammatory (antiphlogistic) and pain relieving (analgesic); that is, they influence the inflammatory symptoms, such as joint swelling, overheating and stiffness, and the inflammation-related pain. They form a fundamental component in the treatment of milder joint inflammation. However, they only influence the symptoms, and not the causes. It is known of some substances in this active substance group (e.g. acetylsalicylic acid, ibuprofen, diclofenac) that they may cause typical side effects in the form of gastrointestinal complaints (nausea, bleeding, etc.). Newer representatives of this substance class consist of the so-called COX-2 inhibitors, which are better tolerated by the stomach due to their more specific mode of action.

**Glucocorticoids (cortisone)**

Cortisone is an artificially (synthetically) produced derivative of cortisol, a natural hormone of the adrenal cortex. It has many effects in the human body. Cortisone products (e.g. prednisolone) are also called glucocorticoids, corticoids or steroids in medical usage. They are used in many illnesses, such as RA, primarily for their strong anti-inflammatory effects. They act on the inflammation both locally and systemically throughout the body. Therefore they not only have positive effects on inflammation-related pain, but also on the general symptoms of the illness and the signs of inflammation which can be measured in the blood.
Information about treatment

+ Base therapeutics

This active substance group is also defined as conventional base therapeutics and long-acting antirheumatics or illness-modifying substances (Anglo-American: DWMRDs = disease-modifying antirheumatic drugs). The active substances differ from the previously listed medication groups in that they are able to stop or at least noticeably reduce damage by chronic inflammation on the joint cartilage or bone.

The conventional base therapeutics most commonly used in rheumatology at this time are methotrexate, sulfasalazine and leflunomide.

All base therapeutics relieve inflammation-related pain and cause local signs of inflammation to subside. Unlike the previously listed active substance groups, however, this only applies in mid to long-term use. Similarly to cortisone, illness-modifying substances also work against systemic inflammation, wherein the signs of inflammation which can be measured in the blood normalise.

Long-acting antirheumatics should be used as early as possible once the diagnosis is confirmed in order to stop threatening bone destruction or organ changes. The choice of medication depends on the duration of illness, the stage and the degree of inflammatory activity. Most products can be used as monotherapy (only one active substance) or in combination with one or more other active substances.

With most base therapeutics, their efficacy can only be assessed after weeks to months. It is therefore important not to stop taking them, even if no noticeable success can initially be detected. If no satisfactory effect occurs despite a sufficiently long period of therapy, a dosage increase may bring about the desired success in some products. Otherwise, the physician will decide whether it makes sense to change the active substance or combine it with another product.

It is true for all long-acting antirheumatics that treatment must be provided continuously for longer periods and will only work if you take the product regularly. This also means that therapy must be continued even if improvement occurs, or continued as long as an effect is noted. Otherwise, an episode or worsening may occur after stopping the medication.
As in any effective treatment, adverse effects may also occur with base therapeutics. If you notice unusual complaints during therapy, inform your physician as soon as possible. To detect any occurring side effects in time and take the required measures, regular checkups with the physician are necessary. The physician will physically examine you and, depending on the type of medication, initiate tests of specific lab parameters and possibly other examinations.

Nearly all base therapeutics must not be used during pregnancy or breastfeeding.

Women of childbearing age must use reliable contraception during therapy and partly also for some time thereafter. In some products, men should not father children during treatment, and partly also afterwards. This also means that you should inform your physician early if you want to have children.

The most important base therapeutics are explained hereinafter. Only the most important information is listed.

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If you take one of these medications, you may wish to obtain more detailed information from your physician regarding things which should be specifically taken into account in therapy with these products.
Sulfasalazine
Sulfasalazine has a weaker effect. It is generally taken twice daily in tablet form. The dosage is low at the outset and is gradually increased over the first few weeks. An effect can generally be expected after about four to twelve weeks. If there is no clear improvement after three months, the physician decides about a dosage increase. It is only possible to assess after a total of six months whether sulfasalazine is sufficiently effective.

Among others, the most common side effects include skin rash with itching, nausea, abdominal pain, loss of appetite, headache, a sensation of weakness and fatigue. Most adverse effects occur primarily in the first weeks of treatment. A complete list of side effects is found in the corresponding package insert.

INFO
MTX has already been used successfully for therapy of RA and other inflammatory rheumatic disorders for several decades. It is the most frequently prescribed base therapeutic for RA. Numerous scientific studies document the good efficacy and usability of MTX, both as a single substance and in combination with other medications.

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**Leflunomide**

Leflunomide acts on RA by inhibiting the inflammation, disturbed immune system reactions and increased tissue growth. It is generally taken once daily in tablet form. The effect occurs after about four to six weeks. Therapeutic success can be definitively assessed after four months at the earliest.

The most common side effects include lack of appetite, nausea, vomiting, abdominal pain, diarrhoea, headache, fatigue, hair loss or skin rash. Some patients develop a slight blood pressure increase or transient mild weight loss.

In the progression of therapy, check-ups are required every two weeks in the first six months, followed by every four to eight weeks. Blood pressure is measured, and blood and urine samples are used to check liver and kidney function as well as blood formation.

**Cyclosporin**

Cyclosporin has an immunosuppressive effect (that is, it suppresses the immune reaction) and is antiinflammatory. The substance is available in the form of capsules or as a drinking solution and is dosed by bodyweight. Cyclosporin is generally taken twice daily. An onset of the effect is expected after four to eight weeks, or rarely not until up to six months.

The most common side effects are deemed to consist of gum changes, high blood pressure, nausea, vomiting and diarrhoea as well as increased body hair. Occasionally, dysfunctions of the liver and/or kidneys as well as fatigue, malaise and trembling are also observed. The risk of infections is slightly elevated. A complete list of side effects is found in the corresponding package insert.
Other base therapeutics
Apart from those listed, there are a few other medications such as azathioprine, cyclophosphamide or (D) penicillamine which are effective for RA. Since they may be accompanied by more severe side effects, they are only rarely used today, for instance in very severe progressions or when other medications are no longer sufficiently effective.

Gold products
Gold can be used both in tablet form (orally) and as a solution for injection (parenterally). The tablets have a relatively weak effect and are therefore used, at most, in combination with other medications.

The solution for injection (e.g. sodium aurothiomalate) is injected intramuscularly (into the buttock muscle) and acts more strongly. The significance of gold products in RA therapy has greatly diminished in recent years due to newer, better treatment options.

Anti-malaria medications: Chloroquine, hydroxychloroquine
The two substances chloroquine and hydroxychloroquine are also used to prevent and treat the tropical illness malaria. They act on RA by weakening immunological reactions.

They are used primarily in combination with other base therapeutics. An onset of the effect is expected after three to four, or sometimes as much as six months. Both medications are only available in tablet form. They are generally taken twice daily. Dosing is dependent on body weight.

Most adverse effects occur primarily in the first weeks of treatment. Nausea, vomiting, headache, dizziness and fatigue are most common. You should avoid intensive sun exposure during treatment. Visual disturbances, such as blurred vision, light sensitivity or colour vision disturbances sometimes occur at the start of treatment. These changes are not harmful and subside after a short time. Retinal changes may occur very rarely during treatment; however the ophthalmologist can detect them in time, before lasting damage occurs.

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Information about treatment
The so-called biologics (biologicals) are among a modern generation of medications which were developed for numerous illnesses. These are various protein substances which are produced using gene technology and whose therapeutic effects are due to their support or inhibition of the activity of naturally occurring substances. They are produced from living cells using biotechnological processes.

They largely consist of monoclonal antibodies – that is, antibodies which originate from a cell and are uniformly structured – or cell messenger substances or other proteins, so-called fusion proteins. Biologics were developed to intervene very specifically in disturbed immunological processes which play a role in the development of RA and other chronic inflammatory diseases. They act by inhibiting messenger substances which support growth and inflammation, and thereby prevent the interaction between cells which are involved in the development of pathological states.

Important points of attack consist e.g. of the messenger substances tumour necrosis factor alpha (TNF-α) or interleukin (IL)-1. These messenger substances act on specific cells by docking to certain cell surface protein structures which are called receptors. These receptors transmit decisive signals to the cell. Some biologics act by blocking the messenger substance itself, while others occupy the receptor and thereby also prevent the messenger substance from having an effect.

“Modern therapy with biologics intervenes in the inflammation process more specifically and effectively than what was possible with the previous base medications. They therefore act rapidly, mainly have a stronger anti-inflammatory effect, and are also particularly well tolerated. Investigations have meanwhile confirmed that the combination of traditional base medications with the new biologics brings about the best therapy results.”

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Information about treatment
Most products are injected under the skin (subcutaneously) and can also be administered by the patient himself/herself after suitable instruction.

Since biologics act very specifically, they appear to have fewer negative effects on normal (physiological) processes in the body and have fewer side effects than common medications. In the best case, some substances can even initiate repair processes in already occurred joint damage and support the correction of the changes which have occurred. The most common side effects include reactions at the puncture site after the injection, such as redness, swelling, pain or itchiness.

A complete list of side effects is found in the corresponding package insert.

As in base therapeutics, biologics must not be used during pregnancy and breastfeeding, and women of childbearing age should not become pregnant at least during treatment, since there is insufficient experience with these substances in this regard.

Since the development and production of these substances is very costly, their use in comparison to common therapies is not cheap.

Biologics are therefore primarily an option for treating patients with RA progression forms which do not sufficiently respond to base therapeutics or in whom they cannot be used due to contraindications or side effects. Significant improvements can be obtained with them even in very severe cases. An effect generally occurs within a few weeks.

"Surely particularly many patients with early Rheumatoid Arthritis (which has not existed for more than two years) attain the desired remission under therapy with biologics. The response is also good with high inflammation activity. However, experience in recent years has shown that patients whose RA has been present for a long time can also draw considerable benefits from therapy with TNF-α antagonists."

Professor Dr. Markus Gaubitz
Physical treatment measures
Apart from medicamentous therapy for pain relief and suppressing inflammation, physical treatment measures – which may consist of various procedures – are also required in order to preserve joint functionality. They should be customised to every patient. For instance, this includes cold or heat therapy, baths, massages and electrotherapy. They serve to relieve pain, counteract inflammation, and encourage muscle relaxation and circulation.

Particularly in acute joint inflammation, cold therapy is very suitable because it reduces swelling and inhibits inflammation. Cold can be applied locally (cryotherapy, e.g. cold packs) or on the entire body (cold chamber).

Physiotherapy which is adapted to the respective illness stage and ensures the restoration or preservation of the best possible mobility is especially important. Special movement exercises are performed under expert instruction. Many of these exercises are also easily done regularly at home once they have been correctly learned.

Ergotherapy can also be helpful. It is intended to contribute to improving or relearning restricted movement processes through exercises. This strengthens the patient’s independence in private and professional life. Sometimes care with aids is also required.

These measures can help to preserve function (for longer periods) and better manage any existing restrictions in everyday life, and any resulting problems. Advice concerning aids for everyday life and their correct use is also among the tasks of ergotherapy.
Surgical procedures

Surgical interventions are also required for RA at times; both for preventing joint destruction and – much more frequently – to preserve the function of joints. Some measures serve to avoid (further) joint destruction. In individual or a few joints, the pathologically altered synovial tissue may be removed with an endoscopic intervention (that is, by endoscopy). Such an intervention is called a synovectomy.

If joint or tendon damage has already occurred, function may be improved by a reconstructive, that is, restorative intervention. Sometimes joint stiffening (arthrodesis) or the implantation of a joint replacement (endoprosthesis) is required.

Whether and when such surgery makes sense depends on many circumstances, such as the nature and function of the joint, stage of illness and extent of physical impairment.

Radiosynoviorthesis

In order to completely remove e.g. any remaining tissue which may still be present after surgical synovia removal, so-called radiosynoviorthesis is usually performed as an additional measure some time after the intervention. Herein a radioactive substance is injected into the joint, destroying the tissue which has inflammatory changes.
Other accompanying measures

The aforementioned treatment procedures can be supported by additional measures as needed. They also combine well with the common medicamentous treatments.

Various methods can be helpful, such as behavioural therapy, relaxation exercises, meditation, yoga or tai chi. They allow better stress and pain management, boost quality of life, and allow the illness to progress more favourably in the long term. Last but not least, these methods can also contribute to better managing mental problems such as depression or fatigue which occurs with the illness.

You will find out over time which method is right for you and suits you best. Not every procedure is suitable for all patients. Of course you can also obtain advice from your physician or therapist.

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Since RA not only leaves physical marks on affected persons, but also means major psychological strain, accompanying psychotherapeutic procedures and/or psychosocial care can often be very helpful for better management of the many challenges which are associated with the illness.

Specific strategies also enable favourable influences on pain reactions.
An optimistic attitude is desirable, but not always easy to maintain in everyday life. This also means that patients with Rheumatoid Arthritis can lead as normal a life as possible according to the modern understanding, and should actively attempt to do so.”

Professor Dr. Markus Gaubitz

Alternative treatment

There are numerous medications and procedures from the “alternative medical” field to provide (supportive) treatment for rheumatic disorders. The so-called “complementary” processes include therapies with bioresonance, Bach flowers, own blood or urine therapy, pendulum therapy and much more. They are not used in classic medicine because their efficacy is not definitively proven.

Anti-inflammatory or cortisone-like effects are ascribed to many plant active substances (phytotherapy). However, similarly, none of these substances were tested according to the criteria as in “orthodox medical substances”. Furthermore, plant products may also have side effects.

Cautious is always indicated when a product does not show the expected effect after longer use. They cannot replace base therapy on their own!

On the contrary. When more effective measures such as base therapy are delayed or even prevented, this may lead to lasting joint damage.

Nonetheless, a product may be helpful in individual cases, and support the specific therapy. If you have had good experiences with a method, however, nothing generally speaks against using it. In any case, you should always first discuss the use of alternative healing methods with your treating physician!
Try to think positively and not argue with your fate too much. A positive and confident attitude lets you better manage many strains and impairments in relation to the illness and the therapy.

Don’t let your illness restrict your everyday life too much. Try to manage your life so that you have joy in it, are able to enjoy it, and undertake leisure activities, travel etc. together with family or friends.

Inform yourself about your illness, and get help and advice from experts and other affected persons, e.g. in patient organisations. A problem shared is a problem halved – that’s why self-help groups are so important. One knows that one is not alone in the world with one’s problem, and receives a lot of support.

Even if every treatment or other measure requires additional time and engagement, you make the effort – in the interests of your health.
Physical movement and sports

“Those who rest, rust” - this is particularly true for rheumatism patients. Specific training provides better circulation and nutrition to the locomotor apparatus (bones, cartilage, muscles) so that muscle strength and endurance are improved. This contributes to preserving physical and mental wellbeing. Last but not least, physical exercise also has very positive psychological effects.

Types of sport which place little strain on the joints are recommended. This includes swimming (particularly swimming on the back), cycling, (Nordic) Walking or cross-country skiing. On the other hand, you should avoid types of sport which may lead to overload, malposition or damage of the joints. This particularly includes types of sport with abrupt movements and sudden stops, such as tennis, squash, football or other ball sports. You should obtain your physiotherapist’s advice in this regard.

It is best if you have an individual training programme customised for you by your physiotherapist, which you can then carry out regularly on your own.

Like physiotherapy, any training must also be adapted to the respective health and training state of the individual patient. If the illness activity is very pronounced or in acute stages, only passive exercises are often possible. Specific endurance and/or strength training is also possible with good health and low illness activity. However, such activities should be coordinated beforehand with the physician or physiotherapist.

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INFO

Regular movement is absolutely necessary and sensible precisely for rheumatism to prevent stiffening of joints, strengthen muscles and tendons (to relieve joints) and avoid malpositions. This is also true for already diseased joints.
Tips for nutrition

There is thus far no scientifically confirmed knowledge that nutrition has a decisive influence on the development or progression of RA. Consequently, there is no special rheumatism diet. Nonetheless, some rheumatism patients observe an association between eating certain foods and a worsening or improvement of their complaints. Sometimes, nuts, dairy products, sweets, fat foods or meat are not tolerated, particularly in larger amounts. There is no patent recipe. Try out what works for you and what doesn’t, and how your body reacts to eating certain foods. If you clearly find that your state worsens in several attempts, it makes sense to avoid that food.

Generally, a balanced, full diet is recommended. This includes plenty of fresh fruit and vegetables, salads, grains (whole grain products), pulses and low-fat dairy products. The following tips may also be helpful:

- **Give preference to plant foods.** Reduce consumption of meat and sausages to a maximum of two meals per week. Largely replace animal fats with plant fats.
- **Eat more fish.** It is known that the unsaturated omega-3 fatty acids contained in fish oils have an anti-inflammatory effect. They are found particularly in fat-rich ocean fish such as salmon or mackerel. One to two meals of ocean fish per week are therefore recommended. After consulting with your physician, suitable food supplements with omega-3 fatty acids (salmon oil capsules) can also be taken.
- **Absolutely avoid being overweight,** since this additionally burdens the joints. If you lose weight, however, you should only gradually reduce your weight.
- **Fasting within limits can reduce the illness activity.** However this should be discussed with your physician, and absolutely not lead to underweight or impair your state of health.
- **Avoid excessive alcohol consumption,** since this may be pro-inflammatory.
- **Absolutely avoid smoking.** Smokers have an increased risk of severe progression, cardiovascular complications and developing rheumatism nodes.

Living with Rheumatoid Arthritis

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Pharmacological and therapeutic measures for treating chronic inflammatory diseases are aimed at influencing the immune system processes.

The immune system is a collection of cells and molecules, responsible for defending the body against foreign substances (antigens) and pathogens. It uses a variety of mechanisms to combat these threats, including phagocytosis, antibody production, and the release of cytokines and other signaling molecules.

The immune system distinguishes between self and non-self substances, using receptors that recognize specific antigens. When an antigen is detected, the immune system is activated to mount a response against it. This response can involve the production of antibodies (antibody-mediated immunity) or the activation of cells (cell-mediated immunity).

Antibodies are proteins produced by B lymphocytes (B cells) in response to specific antigens. They are responsible for the body's ability to distinguish between self and non-self substances, and are crucial in fighting infections by neutralizing or marking foreign substances for destruction by other immune cells.

Cytokines are signaling molecules produced by various cells of the immune system, which play a crucial role in regulating immune responses and orchestrating interactions between different immune cell types. They can also be involved in the pathophysiology of chronic inflammatory diseases, contributing to disease progression and severity.

Antibodies and cytokines work together to mediate the immune response, which can be both beneficial and detrimental. In chronic inflammatory diseases, an inappropriate immune response can lead to tissue damage and disease progression.

Therefore, pharmacological and therapeutic measures must be carefully targeted to modulate the immune response and prevent excessive inflammation, while preserving the body's ability to fight infections and maintain tissue integrity.
intra-articular
within or into the joint
influenza
infection of the airways
→ J
Juvenile Idiopathic Arthritis
form of chronic joint disorder which primarily affects children and/or adolescents
→ L
leukocyte
white blood cell
lymphocyte
sub-type of white blood cells (leukocytes) which plays an important role in defences
→ M
macrophage
sub-type of white blood cells (leukocytes) which is part of the immune system; macrophages can “digest” foreign substances and are therefore also called water cells
mediators
messenger substances which serve in communication between cells
mononuclear
inflammation of a (single) joint
monarticular
inflammation of a (single) joint
mon(o)arthritis
polyarticular
inflammation of many joints
polyarticular
inflammation of many joints
Psoriasis
psoriatic skin disease
Psoriatic Arthritis
chronic inflammatory joint disorder which is usually accompanied by psoriasis of the skin and/or nail
PUVA
(p. psoralen + UVA)
UV radiation with the addition of psoralen to increase light sensitivity (photopheraphy), psoralen can be administered in tablet form or applied externally. There is also a special form, PNL therapy, in which the substance is added to the bath water.
→ R
receptor
Structure of a cell which is usually at the cell surface, which receives signals transmitted by messenger substances and enables the cell to react to this messenger substance.
rehabilitation
extraction, reinstitution or prevention to correct health disorders
remission
long-term or transient disappearance of illness symptoms; complaint-free state
rhematism factor (RF)
Antibodies against the body’s own proteins; detectable in some chronic rheumatic disorders, primarily in Rheumatoid Arthritis, in the blood serum (“positive”); also rarely in healthy persons
Rheumatoid Arthritis (RA)
chronic polyarticular inflammatory joint disorder, also called rheumatism in common language
→ S
spondylarthropathy
inflammatory rheumatic disorder, primarily with spinal changes
spondylitis
inflammation in the spinal region
spotty nails
nail changes which are typical of psoriasis and Psoriatic Arthritis, with small (approx. up to pinhead-sized) indentations in the nail plate which are due to a disturbance of nail growth;
steroid
subacute back pain syndrome which is especially common in the elderly and which is often accompanied by psoriasis of the skin
Synovial Arthritis
inflammation of the synovial membrane systemic
affecting an entire organ system or (in the wider sense) also several organ systems; that is, the entire organism
→ tamoxifen
necrosis factor alpha-inhibitor
(NF-a-inhibitor) naturally occurring messenger substance (cytokine) of the immune system with numerous influences; among other things, it also plays a central role in many inflammatory processes
synovial fluids
Synovial joint
joint in which the involved bone surfaces are covered with a layer of cartilage and have a joint cavity which is filled with synovial fluid and lined with a synovial membrane, as well as being strengthened by a connective tissue capsule and ligaments
synovial membrane
membrane of the joint capsule which consists of connective tissue, lines the joint cavity and produces the synovial fluid
Synovitis
inflammation of the synovial membrane
systemic
affecting an entire organ system or (in the wider sense) also several organ systems; that is, the entire organism
→ tumour necrosis factor alpha-inhibitor
(NF-a-inhibitor) naturally occurring messenger substance (cytokine) of the immune system with numerous influences; among other things, it also plays a central role in many inflammatory processes
Further information.
Knowledge is power. Face your disease smart and strong.

Self-help group

- Deutsche Rheuma-Liga Bundesverband e.V.
  Maximilianstr. 114
  53111 Bonn
  Tel.: 02 28 / 7 66 70 80
  Fax: 02 28 / 7 66 06 20
  www.rheuma-liga.de

The German Rheumatism League is the largest self-help organisation in the health field with approx. 250,000 members. It offers help and self-help for affected persons, exercise offers, public information and representation of the interests of rheumatism sufferers, among other things.

Internet addresses

- www.rheumat.net
  The Deutsches Rheumahaus offers various information and links on rheumatic disorders.

- www.rheuma-online.de
  Information on Rheuma von A bis Z [Information on rheumatism from A to Z]. Current news on the disease and therapy options, option for affected persons to exchange experiences.

- www.hazem.de
  Rheumazentrum München (Munich Rheumatism Centre): Rheumatism from A to Z, with numerous photos on Psoriatic Arthritis and an option to search for a physician.

- www.rheuma-wegweiser.de
  A list of recommended websites on various rheumatic disorders.

Book tips

- Diagnose Rheuma. Lebensqualität mit einer entzündlichen Gelenkerkrankung (Diagnosis of rheumatism. Quality of life with an inflammatory joint disease)
  Daniela Loisl, Rudolf Puchner

- Rheuma – ein Patientenlehrbuch. (Rheumatism – a patient guidebook.)
  Wolfgang Miehle
  Rheumamed-Verlag, 2007

- Entzündliches Gelenkrheuma. Rat, Hilfe und Informationen (Inflammatory joint rheumatism: Advice, help and information)
  Wolfgang Miehle
  Rheumamed-Verlag, 4th edition, 2005

- Rheumatoide Arthritis – alles was hilft. Therapien und Tips für Menschen mit Gelenkrheuma (Rheumatoid Arthritis – everything which helps. Therapies and tips for persons with joint rheumatism)
  Michaela Sievers
  Gower Verlag, 1st edition, 2003

  Dr. med. Susanne Holst, Ulrike Preußiger-Meiser
  Südwest Verlag, 2nd edition, 2004

Further information.
Rheumatoid Arthritis. Active living.
A patient handbook about Rheumatoid Arthritis.