



***Working Group  
of European  
Radon Spas***

***10 Questions  
on  
Radon Therapy***

9th Edition 2016

# *10 Questions on Radon Therapy*



## **An information brochure of the Working Group of European Radon Spas**

9th Edition 2016

# IMPRINT

**Publisher:**

Working Group of European Radon Spas  
Prof.-Dr.-Boris-Rajewski-Strasse 4, 08301 Schlema  
Tel. / Fax +49(0 )37 72 / 2 29 26  
Internet: [www.euradon.de](http://www.euradon.de)  
E-Mail: info@euradon.de

**Sources:**

RADIZ-Information 14/96  
(Radon Documentation and Information Centre, Schlema)  
  
Conference book of the 2001 3rd Biophysical Working Conference in Schlema,  
Aue 2002  
  
The Federal Office for Radiation Protection current 2/00

**Printed by**

M. M. advertising agency  
Lindenstraße 46  
D-08280 Aue  
Germany  
Internet:  
[www.mm-werbeagentur-aue.de](http://www.mm-werbeagentur-aue.de)

# CONTENTS

- Foreword
- Introduction

## **Part 1: Radon and Radioactivity**

- 1 What is radon?
- 2 Where does radon occur?
- 3 Which biological effects of radioactivity are known?

## **Part 2: Radon as a Mean of Treatment**

- 4 Can radon trigger beneficial reactions in the human body?
- 5 How is radon therapy carried out?
- 6 Is there any risk of radioactive contamination during radon therapy?
- 7 For which diseases is radon therapy advisable?
- 8 What kind of patients should not undergo a balneological radon therapy?
- 9 Are the results of radon therapy scientifically proven?
11. Where is radon therapy available?

- Additional question:  
What does the Office for Radiation Protection say about radon therapy?
- Further Literature

## FOREWORD 9th Edition

This brochure is based on the RADIZ Information leaflet 14/96 entitled "22 Answers to Questions about the Subject of Radon". Because of the a great public interest of patients, physicians and scientists several editions were published in the past years including new knowledge about radon by Hans Jöckel, MD and Friedrich Dörtelmann. Frequently asked questions concerning radon-balneology will be answered in a comprehensive manor, based on scientific studies, especially to the benefits and safety of radon-therapy

Since 1991 five biophysical meetings have been taking place place in Bad Schlema/Saxonia, where biophysicists, physicians, scientists and experts for radiation protection got together for information and communication. The lectures are published in a booklet for generally information. This booklet is the basic for this brochure and information for FAQ.

EURADON, which is the Union of European radon spas, is made up of members from Germany, Austria, Czechia and Poland. Every year meetings are organised by EURADON in one of the EURADON partner spas for an exchange of experiences on scientific, experiential and logistic topics. Further locations with radon springs are invited to join EURADON.

Since 2007 EURADON is member of the EUROPEAN SPA UNION, section radon. EURADON supported the International, multicentric and doubleblinded IMURA-Study, which took place from May 2009 until autumn 2010 in seven radon-locations in Germany and Austria. This Study is published in the International Journal of Rheumatology 2013. You will find a summary of the results on page 17 of this brochure. Furthermore this brochure informs you on important results of the recent Bad Steben-RADON\_01study 2013, which are submitted for publishing.

EURADON supports further studies of members with the aim to reveal the mechanism and effects of radon balneology and to specify its indications and application.

Bad Schlema; May 2016

Steffen Matthias,

Chairman of EURADON, Union of European Spas.

## INTRODUCTION

Since birth each human being is exposed to natural radioactivity and radon is a big part of it. The inert gas radon is on the one hand suspected to cause lung cancer on the other hand it is a remedy in radon balneology.

“The dose makes the poison” as Paracelsus told, does this declare the difference between benefit and damage? This paradoxon caused a vivid discussion, partially overlapped by ideology in science and public media. The aim of this brochure is to explain the so called radon-paradoxon including the newest scientific studies and knowledge.

This brochure addresses primarily people without any specialist medical knowledge. It is based on the comprehensive RADIZ-Information 14 / 96 "22 Answers to Questions about the Subject of Radon" by Prof. Werner Schüttmann, Berlin, and further on is based on the results of the 3rd Biophysical Working Conference in Schlema in 2001. This booklet provides compact answers to constantly recurring questions about radon therapy, in a generally comprehensible and yet scientifically based way.

## Part 1: Radon and Radioactivity

### QUESTION 1

#### Question 1: What is radon?

Radon, more exactly radon-222, is a natural radioactive inert gas, that is colourless and tasteless, without any chemical reactions in the human body.

It has a high alpha radiation energy, but a small penetration depth up to 4 tissue cells. This high energy alpha-radiation causes biological effects in the cells. Thus low doses, as we use it in radon balneology, induce positive biological effects as described below, whereas high doses causes damage to the cells. Radon is everywhere in the earth crust and mainly concentrated in granite mountains, that's why radon spas are located in such regions

Radon (Rn) 222 is generated from Radium (Ra) 88, which is derived from uranium over millions of years.

The physical half-life of radon is 3,8 days, whereas the biological half-life is only 20 - 30 minutes. Thus half of the radon intake has left the body within this time. Only few hours later no radon can be verified in the body anymore.

The discussion about radon-risk does not concern radon itself, but mostly its "daughters", which means its degradation products, especially polonium, bismuth and plumbum with short physical half-lives between 162 msec and 26,8 min (Po 214 and Pb 214).

These reactive „daughters“ are estimated about only 2 %, whereas the main portion, the inert radon, leads to no chemical reactions in the body. Within hundreds of years of radon balneology no specific negative side-effects, especially tumorigenesis, have been described. In contrary, low radiation, as we use it in radon balneology leads in experimental animal studies to positive effects in regeneration and repair of cells.

## QUESTION 2

### Question 2: Where does radon occur?

Radon is found everywhere in the earth crust, in water and in the air. Radon levels vary greatly according to the region. Radon is especially high in places where a great deal of rock strata containing uranium occurs and where the ground is very gas-permeable. This is amongst others the case in the German mountains of:

“Erzgebirge, Fichtelgebirge, Frankenwald, Oberpfalz, Bayerischer Wald, Hunsrück”, the Austrian mountains of “Hohen Tauern, Mühlviertel and Innviertel“. These regions have radon spas.

Furthermore radon spas are known in Swiedarow (Flinsberg) in Poland, Heviz in Hungary, Meran and Ischia in Italy, Misasa in Japan and in Russia. If spring water is surrounded by a great deal of radon gas in the ground, the springs may also contain radon.

Radon also occurs in houses and apartments, depending on how impermeable the subsoil beneath the building is.

If people are exposed for long time in buildings to a high radon level, it may cause radon damage, especially higher rates of lung cancer mostly in conjunction with co-factors like dust and smoking.

On contrary, short term radon exposure, as we use it in radon balneology, may lead to beneficial effects as we have documented in the brochure „Radon and Health“ ISBN 3-631-35532-7.

Every person absorbs natural radioactive substances via breathing and food. In average people in Germany are exposed to natural radioactivity amounting to 2.4 mSv (milli-Sieverts) every year. Radon makes up more than half of it with about 1.4 mSv of natural radiation.

The Sievert (Sv) unit of dosage expresses the biological effect of radiation on the human body, which depends on the type of radiation and its susceptibility on parts of the body affected.



In addition to natural radiation, there is also radiation triggered by civilisation sources, which result in an average value of 1.6 mSv. This level of contamination is mainly due to the medical sector, primarily x-rays.

## QUESTION 3

### **Question 3: Which biological effects of radioactivity are known?**

In the case of ionizing radioactivity, energy is transmitted, which triggers particular changes in cells in the human body. Radiation experts are agreed that exposure to large doses of radioactivity can cause cancer or harm unborn children in their mother's womb.

However, experts do not conform on the risk to health posed by very low doses of radioactivity.

There is reliable evidence from animal experiments, epidemiological and observation-studies, experiments carried out on animals and studies involving human beings, that radioactivity in tiny doses up to a particular presumable threshold can even be beneficial to people's health. Balneologists assume that small doses of radiation in the form of radon provide a short stimulus, which animates cells and organs. This positive effect of small doses, as opposed to the damaging effect of large doses, is called hormesis (hormao = Greek "to stimulate, excite"). This hormesis theory contrasts with the theory of a linear dose-effect relationship(LNT)without any threshold. Purely for precautionary reasons, the German Office for Radiation Protection maintains the view that radiation even in very small doses might still be dangerous.\* However, this is a purely theoretical assumption, as it is only based on calculations. Up to now no evidence has been provided suggesting that any danger to people's health is posed by radioactivity in small doses.

\* see also additional question on page 20

## QUESTION 4

### Part 2: Radon as a Mean of Treatment

#### Question 4: Can radon trigger beneficial reactions in the human body?

Balneologists and physicians of radon spas notice long lasting anti-inflammatory and pain-relieving effects after balneological radon applications. Meanwhile there is a great deal of evidence to explain this effect by scientific basic research work

- The ability of cells to repair themselves with regard to defects in a person's genetic inheritance is improved by alpha radiation. Each cell naturally has the capability to recognise and eliminate dysfunctionality, including cancerous degeneration in good time. If cells are initially exposed to fairly low doses of radiation and afterwards to larger doses, the normal damage triggered by larger doses of radiation is avoided.
- Radon or its decay products accumulate in fatty tissue and in the central nervous system during radon treatment.  
Because the ZNS and hormone organs have a great portion of lipids, this could lead to an increased hormone production level, i.e cortisol in the adrenal gland as anti-inflammatory agent. The pain-relieving effects of radon treatment are also partly due to the release of endorphines (the body's own pain-relieving substances).
- Positive effects are furthermore created in the immune system: in the case of patients with ankylosing spondylitis and degenerative problems in their joints, the initial lower activity of immune cells is normalised by radon treatment.
- The production of radical interceptors is increased. They make free radicals harmless - destructive metabolites, which play a vital role in rheumatic processes etc.

## QUESTION 5

### **Question 5: How is radon therapy carried out?**

Taking baths, drinking, inhaling - these are the three different types of radon therapy practised at spa centres nowadays during two-, three- or four-week spa treatments with loading doses in 8 to 12 applications.

The inert gas penetrates mainly the body's skin during serial radon baths. Additional inhalation of radon gas on the water surface is possible. To improve skin absorption and to protect the lung we often use bathtubs covers.

During spa treatments in a therapeutic mining gallery, patients breathe in air containing radon. If the patients are naked, radon is also absorbed via the skin. At centres with springs containing radon, the rising gases can also be trapped and fed to the patients via domes, so that they can inhale the mix, or to cubicles for steam baths.

In the case of treatment where water containing radon is drunk, the person's blood circulation absorbs radon via the stomach / digestive tract.

## QUESTION 6

### **Question 6: Is there any risk of radioactive contamination during radon therapy?**

What is known as "Schneeberg disease" hit the headlines a century ago. Miners in the "Erzgebirge", who were exposed to high concentrations of radon and dust for a period spanning many years, died from lung cancer at an early age. Studies have now established a clear link between high doses of radon and lung cancer. On the basis of these data the possible risk of inducing a tumour during radon therapy is discussed using purely mathematical models. Experts exclude the possibility of people getting other types of cancer in connection with radon.

It must be stressed out that radon therapy carried out in a mining gallery involves a far lower amount of radon than was present in working mines. By way of comparison, miners were exposed to doses amounting to several Sieverts (Sv, see question 2) for a period of many years.

Experts calculated that people receive no more than only 2,0 mSv (Milli-Sieverts) during a three-week course of treatment in a mining gallery. This roughly corresponds with the amount transmitted when a person's stomach is xrayed. During bath series, the amount is just 1 mSv at maximum.

Experts therefore say that balneological radon treatment represents a level of exposure that is encountered in normal circumstances.

Therefore the data obtained from mining workers cannot be transferred to radon spa treatments, because the air in active mines, as opposed to a treatment in a mining gallery, is contaminated by other harmful substances that cause lung cancer, e.g. arsenic or diesel exhaust fumes and moreover fine dust. Furthermore most miners were smoking.

Regarding these co-factors, like long period of exposure, high concentration of radon and decays, fine dust and smoking, it is obvious that lung cancer risk is negligible low in radon balenology with a short time exposure on low radiation levels, unregardless that the linear no threshold model (LNT) is a extrapolation from high to low doses and not proven in low doses.

Furthermore high radon exposure in homes over many years is not comparable with radon balneology on the same reasons and is also related to factors as smoking.

But as in any medical radiation treatment the physician has to decide and consider the risks and benefits for each individual patient.

## QUESTION 7

### **Question 7: For which diseases is radon therapy advisable?**

In the course of experiences with radon therapy, which has been documented for almost one hundred years, some types of diseases have been evaluated where radon treatment has been specifically effective.

These are:

- Rheumatic diseases, primarily ankylosing spondylitis, but also chronic polyarthritis (rheumatoid arthritis), not in an acute phase
- Arthrosis of joints and degenerative backpain syndrom
- Particular types of soft tissue rheumatism
- Respiratory tract diseases, like asthma, bronchial or chronic bronchitis;
- Dermatological diseases, like psoriasis and scleroderma.

All these diseases are more or less related to an inflammation.

Radon cannot heal these chronic diseases, but it can play a significant role in soothing the symptoms.

In order to improve the patients' quality of life in the long-term, the spa treatment can be repeated up to twice a year, every one to three years at the most. It is a therapy without side effects in contrast to longterm medical treatment.

## QUESTION 8

**Question 8: What kind of patients should not undergo a balneological radon therapy?**

People with

- overactive thyroid,
- pregnant women,
- severe heart diseases and rhythm disturbance
- patients with an acute illness

should not undergo balneological radon therapy.

- In the case of children and adolescents the physician will carefully consider the age of the patient and its potentially risks and benefits.
- For cancer patients who have been successfully treated, the physician must provide an individual decision  
Thereby a specific healing time of cancer must be respected
- The mining gallery treatment is unsuitable for people who suffer from claustrophobia.

## QUESTION 9

### Question 9: Are the results of radon therapy scientifically proven?

Some hot springs have enjoyed the reputation of having particular healing power for centuries, e.g. on the island of Ischia or in Bad Gastein.

If the healing power was once attributed to a "spring spirit", scientists discovered in 1904 that radon was the effective element in the spring water.

Radon therapy has now been subjected to clinical studies on patients -- with positive results. All studies show that the therapeutic effect of radon carries on for several months. In carefully monitored double blind trials, where neither patients nor doctors knew which patient received radon and which didn't, its therapeutic effect was confirmed.

Here are some examples:

- While treating 60 patients with chronic polyarthritis, who underwent a 4-week rehabilitation course at a medical centre, involving medical baths, gymnastics and other treatments, it was possible to show that carbon dioxide baths, containing radon, were more effective than those which did not contain any radon. Those patients, who were being treated with radon (15 full baths), had significantly less pain and were able to move better than the comparison group, who also had 15 baths. While the improvement achieved by the treatment in the monitored group rapidly wore off, the positive effect in the radon group could still be felt 6 months after the treatment.

*Source: Wirksamkeit und Verträglichkeit der RADON-Bäderbehandlung bei Patienten mit Rheumatoid-Arthritis*

*L.Reiner, K-L-Resch, H.G.Pratzel ( Bad Brambach, LMU München)*

*RADON in der Kurortmedizin; I.S.M.H.-Verlag Geretsried 1997,*

*ISBN 3-9804437-2-8: 169-208*

- 260 patients with ankylosing spondylitis received treatment at a medical centre for 4 weeks, involving rehabilitation measures including gymnastics and sport; one group of them also inhaled radon in a treatment mining gallery. They also had significantly less pain 9 months later than the comparison group that had not inhaled radon. The savings in medicines is also particularly interesting in this case - especially if not



only the expenditure is taken into account, but also the side-effects, some of which are enormous: While the monitored group only reduced its initial dose of painkillers by 1/6, and only for a period of 6 months, the radon group required 1/3 less painkillers a whole year after the treatment.

*Source: Zusatzeffekt der RADON-Stollentherapie im Rahmen der stationären Rehabilitation bei Spondylitis ankylosans.*

*Eine kontrollierte Studie mit prä-post und follow-up-Untersuchung  
G. Lind-Albrecht u. U. Droste, Karl-Aschoff-Klinik Bad Kreuznach  
RADON in der Kurortmedizin; I.S.M.H.-Verlag Geretsried 1997,  
ISBN 3-9804437-2-8: 164-168*

Russia, with more than 30 radon spa centres, has had especially good opportunities to test the effects of radon going back a long way. Radon preparations are also made up artificially there. This enabled scientists to prove that the positive effect of radon can be reproduced and is dose related as a proof of the therapeutic effect of a medical substance for pharmacologists. In addition, the radium laboratories were able to prove that the success of radon is not attributable to the general influences of the spa treatment, but actually to radon itself.

- In a further study with 100 Bechterew patients, which had repeated rehabilitation treatments over 12 years, it could be shown, that drug use was significantly lower if the rehabilitationcourse was combined with a radon mine gallery application

*Source: Tubergen et.al. 2000 : M.Bechterew, 120 Pat. randomisiert in 3 Behandlungsgruppen; 6-9 Monate besseres Ergebnis nur noch in der Radongruppe Zitiert in RADON als Heilmittel, Verlag Dr. Kovac, 2005, ISBN 3-8300-1768-5: 22-23*

- In the International Multicentric Radon (IMURA) Study 652 patients with joint diseases or back-pain-syndrome, underwent ambulatory treatment in 9 different radon spas in different countries. The study was double blinded with normal baths.

The aim of the study was to evaluate the pain relieving and functional improvement regardless of the application mode such as bath series or mine gallery with different radon concentrations.

The result was a significant pain reduction up to 9 months, reduction of paindrug intake and in patients with joint diseases, a funtional improvement in the group wtih radon balneological treatment compared to the monitored group.

- Thus we can conclude a long term pain relief, less paindrug intake and functional improvement by balneological radon treatment in 10 baths or mine gallery sessions within 3 weeks up to 9 months, which means an important benefit for quality of life for these patients.

Source: "IMURA:,, Longterm benefits of radon spa therapy in rheumatic diseases: results of the randomised, multi-center IMuRA -trial ,, International Journal of Rheumatology, July 2013

- In the RADON\_01 Study 2013 in Bad Steben 100 ambulatory patients were included with musculoskeletal diseases as joint diseases or backpain-syndrom.

The aim of the study was to evaluate if clinical effects correspond with immunological changes,

The immunological measurements were performed by Prof.Dr.Gaipl, Head of Immunobiology, ray clinic University of Erlangen-Nürnberg.

On ethical reasons one group received 9 radon baths within 3 weeks with 1200 Bq/l, the other group RADON/CO<sub>2</sub> mixed with 600 Bq and 1 g CO<sub>2</sub>.

The study was designed as a double blinded monotherapy, neither patients nor therapists or physicians knew which medium was applied.

All patients came from the Bad Steben region and continued their daily life. No concomitant drugs or physiotherapeutic treatments were allowed. All patients suffered more than 1 year with VAS-Level 4 and more.

The results showed a painrelieving effect in 72% up to 4-6 months, without significant differences between RADON and RADON/CO<sub>2</sub> groups, by trend in the pure radon group the effects were a little bit stronger and lasted longer.

In the RADON/CO<sub>2</sub>-CO<sub>2</sub> -group we noticed additionally a significant bloodpressure lowering for more than 4 months in the range of antihypertensive pills.

Corresponding to the clinical effects immunological changes could be documented up to 6 months with immunomodulation and inflammation reduction.

Thus we can explain on immunological basis the long lasting, pain relieving effect of serial radon baths.

Furthermore we found significant antiarteriosclerotic effects in the

radon-group and by trend a stress reduction by vagusstimulation.  
(Submitted for publication in Int.Journal of Rheumatology and Journal  
Blood)

We conclude that series of radon-baths and radon-balneology do not only show benefits in inflammatory rheumatic diseases, but are also beneficial in degenerative joint diseases as well as in the back-pain syndrom.

This is an important issue in an ageing society, because more than 70% of the elderly suffer from it and the longterm treatment is difficult and expensive.

## QUESTION 10

**Question 10: Where is radon therapy available?**

### **Germany**

#### **Bad Brambach**

Springs with carbon dioxide containing radon

Kurverwaltung,

Badstraße 47, 08648 Bad Brambach,

Tel: 037438 / 88111, Fax: 037438 / 88 222

Internet: [www.bad-brambach.de](http://www.bad-brambach.de)

E-Mail: [info@bad-brambach.de](mailto:info@bad-brambach.de)

#### **Bad Kreuznach**

Therapeutic mining gallery

Bad Kreuznach Tourismus- u. Marketing GmbH

Postfach 1864, 55508 Bad Kreuznach

Tel: 0671 / 8360050 Fax: 0671 / 8360080

Internet: [www.bad-kreuznach.de](http://www.bad-kreuznach.de)

E-Mail: [kreuznach-info@t-online.de](mailto:kreuznach-info@t-online.de)

#### **Bad Münster am Stein-Ebernburg**

Springs containing radon

Verkehrsverein Rheingrafenstein,

Berliner Str. 60, 55583 Bad Münster am Stein-Ebernburg,

Tel: 06708 / 641780 Fax: 06708 / 6417899

Internet: [www.bad-muenster-am-stein.de](http://www.bad-muenster-am-stein.de)

E-Mail: [verkehrsverein@bad-muenster-am-stein.de](mailto:verkehrsverein@bad-muenster-am-stein.de)

#### **Bad Schmiedeberg**

Spring water containing radon

Eisenmoorbad Bad Schmiedeberg Kur GmbH

Kurpromenade 1, 06905 Bad Schmiedeberg

Tel: 034925 / 60 Fax: 034925 / 62900

Internet: [www.eisenmoorbad.de](http://www.eisenmoorbad.de)

E-Mail: [verwaltung@eisenmoorbad.de](mailto:verwaltung@eisenmoorbad.de)

#### **Bad Steben**

Spring water containing radon  
Bayer. Staatsquelle Bad Steben GmbH  
Postfach 1320, 95134 Bad Steben  
Tel: 09288 / 960-0, Fax: 09288 / 960-10  
Internet: [www.bad-steben.de](http://www.bad-steben.de)  
E-Mail: [tourist-information@bad-steben.de](mailto:tourist-information@bad-steben.de)

### **Bad Schlema**

Springs containing radon  
Kurgesellschaft mbH, 08301 Schlema  
Tel: 03771 / 215500, Fax: 03771 / 215501  
Internet: [www.kur-schlema.de](http://www.kur-schlema.de)  
E-Mail: [info@bad-schlema.de](mailto:info@bad-schlema.de)

### **Sibyllenbad**

Springs containing radon  
Kurmittelhaus Sibyllenbad  
Kurallee 1, 95698 Neualbenreuth  
Tel: 09638 / 9330, Fax: 09638 / 933140  
Internet: [www.sibyllenbad.de](http://www.sibyllenbad.de)  
E-Mail: [info@sibyllenbad.de](mailto:info@sibyllenbad.de)

## **Austria**

### **Bad Gastein**

Therapeutic mining gallery, thermal springs containing radon  
Kur- und Fremdenverkehrsverband,  
A-5640 Bad Gastein,  
Tel: 0043 / 6434 / 3393 510, Fax: 0043 / 6434 / 3393 537  
Internet: [www.badgastein.at](http://www.badgastein.at)  
E-Mail: [info@badgastein.at](mailto:info@badgastein.at)  
Internet: [www.gasteiner-heilstollen.com](http://www.gasteiner-heilstollen.com)  
E-Mail: [office@gasteiner-heilstollen.com](mailto:office@gasteiner-heilstollen.com)

### **Bad Hofgastein**

Radon thermal baths  
Kur- und Fremdenverkehrsverband,  
A-5630 Bad Hofgastein,  
Tel: 0043 / 6432 / 7110 0, Fax: 0043 / 6432 / 7110 31  
Internet: [www.badhofgastein.com](http://www.badhofgastein.com)

E-Mail: [info@badhofgastein.com](mailto:info@badhofgastein.com)

Internet: [www.kur-vitalzentrum.com](http://www.kur-vitalzentrum.com)

E-Mail: [info@kur-vitalzentrum.com](mailto:info@kur-vitalzentrum.com)

### **Bad Zell**

Spring water containing radon

Kurverband, A-4283 Bad Zell

Tel: 0043 / 7263 / 7516, Fax: 0043 / 7263 / 723133

Internet: [www.tiscover.com/bad-zell](http://www.tiscover.com/bad-zell)

E-Mail: [muehlenviertler.quell@com.at](mailto:muehlenviertler.quell@com.at)

## **Czech Republic**

### **Jáchymov**

Spring water containing radon

Kurverwaltung, CZ-36251 Jáchymov

Tel: 00420 / 3 53 / 811 111, 811 12 08

Fax: 00420 / 3 53 / 811 730

Internet: [www.laznejachymov.cz](http://www.laznejachymov.cz)

E-Mail: [ljachymov@telecom.cz](mailto:ljachymov@telecom.cz)

## **Poland**

### **Świeradów Zdrój (Bad Flinsberg)**

Spring water containing radon

Kurbetrieb Bad Flinsberg – Bad Schwarzbach GmbH

Zdrojowa Str. 2, PL-59-850 Świeradów-Zdrój

Tel. 0048/757 820 600, Fax 0048/757 520 588

Internet: [www.uzdrowisko-swieradow.pl](http://www.uzdrowisko-swieradow.pl)

e-mail: [marketing@uzdrowisko-swieradow.pl](mailto:marketing@uzdrowisko-swieradow.pl)

**Other radon spa centres** are found in Russia

(more than 30 spas), Bulgaria, Italy, France, Japan, Hungary, Switzerland

## ADDITIONAL QUESTION

### **What does the Office for Radiation Protection say about radon therapy?**

"Radon balneotherapy may be medically justified for people suffering from chronically painful diseases of the respiratory tract, of inflammatory and non-inflammatory rheumatic diseases if treatment is deemed desirable to pain-relief and improve patient's welfare and to reduce additional to drug therapy with its partially heavy side effects in longterm therapy.

Radon balneology may be indicated in chronical painful musculoskeletal disorders following strict, medically competent advice and carefully considering the radiation risk and monitoring the therapy measures by physicians.

Particular individual risk factors, such as smoking habits, age, sex and constitution of the patient must be taken into account.

Important reasons related to the dangers of radiation preclude the treatment of children, adolescents and pregnant women."

*Taken from*

*Statement by the Office for Radiation Protection on Radon Balneotherapy*

*Source: BfS current, Information from the Office for Radiation Protection*

*2 / 00 3rd year June 2000*

## FURTHER LITERATURE

### 22 Answers to Questions on the Subject of Radon

by W. Schüttmann, RADIZ-Information 14 / 96, Radon Documentation and Information Centre Schlema,  
Prof.-Dr.-Boris-Rajewsky-Str. 4, 08301 Schlema, 1996  
ISSN 1610-8531

### Radon in Spa Medicine

Anthology, some articles in English, edited by H. G. Pretzel and P. Deetjen,  
ISMH-Verlag Geretsried, 1997, ISBN 3-98-04437-2-8

### Radon and Health

Review anthology from the 1998 Bad Hofgastein Symposium, some articles in English, edited by P. Deetjen and A. Falkenbach, Europ. Verlag der Wissenschaften Peter Lang, Frankfurt am Main, 1999, ISBN 3-631-35532-7

### Special Articles on the Subject of Radon

Current articles from professional journals can be obtained from ARGE Europ. Radonheilbäder Prof.-Dr.-Boris-Rajewsky-Strasse 4, 08301 Schlema

Conference Book of the 2001 3rd Biophysical Working Conference in Schlema  
Auer Druck und Verlag, Aue, 2002

Radon Documentation and Information Centre Schlema,  
Prof.-Dr.-Boris-Rajewsky-Str. 4, 08301 Schlema, 2002  
ISSN 1610-5079 and ISBN 3-9806914-5-4