

# move! 86

*a new way of thinking about everyday life  
in medicine and in the clinic*

STIMULI FROM ORTHOPAEDICS AND THE PROFESSIONAL FIELD – FOR PHYSICIANS, SPECIALISTS AND EXECUTIVES

*Interview with Dr Dirk Frauenschuh*

«The 2-peg design  
allows excellent  
anatomical positioning»



*Focus on science*

Immediate outcome measurement  
in joint replacement



*From the professional field*

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## «The 2-peg design allows excellent anatomical positioning»



**Dr Dirk Frauenschuh**

is the Clinical Director of the Westklinik Dahlem and has worked as an orthopaedic and trauma surgeon specialising in shoulder surgery since 2007 at the Orthopädisches Zentrum Spreebogen (OZS) in Berlin. He carries out around 900 shoulder operations a year. The majority of procedures involve arthroscopic, minimally invasive surgery for rotator cuff tears, impingement syndrome and shoulder instability. His secondary area of expertise is replacement of the shoulder joint.

*The vitamys Glenoid from Mathys is particularly resistant to ageing, wear and oxidation*

*thanks to its material properties. The implants design allows stable anchoring and*

*excellent durability. Shoulder expert Dr Dirk Frauenschuh reports on his clinical experiences.*

**Dr Frauenschuh, has your clinical use of glenoid components changed since using the vitamys Glenoid from Mathys for the first time? If so, in what way?**

I believe that the vitamys Glenoid has significant benefits, especially in younger patients in whom a total shoulder replacement is indicated. This group benefits greatly from it due to the excellent durability that can be expected from the glenoid components. In younger and more active patients particularly, the wear of a tribological pairing is becoming an increasingly important factor. Tribological pairings involving ceramic and vitamys PE cause less wear. The patient does not need to abandon their desire to lead an active lifestyle following implantation of the prosthesis simply to ensure it has a longer lifespan.

**«This highlights the importance of a long-lasting glenoid component that the improved vitamys PE is aiming to achieve.»**

**Have you found any functional differences between the Mathys Standard PE Glenoid and the new vitamys Glenoid with a smaller edge design and larger radius offset?**

The position of the implant can now be achieved with greater certainty, due to the improved instrumentation and retractors. The enlarged gleno-humeral radius mismatch allows greater head compatibility and gives the surgeon more combination options.

The danger of an implant loosening due to the «rocking horse» phenomenon is reduced further by the flattened edge design. This is also achieved by making the implant smaller compared to the previous model. The now thicker implant also allows better restoration of the offset.

I think that cementing is hugely important for long-term implant survival. In this case, the undercut cement grooves and thin cement mantle around the pegs allows more homogeneous cementing. The implant's stability is also increased thanks to longer pegs.



**«These are advantages that, to me, are crucial criteria when it comes to choosing an implant.»**

**Registers have shown higher revision rates with larger glenoid sizes. Are you able to envisage any long-term benefits that the design adaptations outlined above might bring?**

The increased head compatibility, in particular, offers the surgeon the opportunity to



choose a smaller glenoid in larger patients. The size 4 glenoids in particular have proven to be particularly at risk of showing higher revision rates in registries. The increased mismatch tolerated (allows combination of smaller glenoids with larger heads) will certainly have an impact in terms of a significant improvement in the implant lifespan, especially in this challenging patient group.

**«I think that cementing is hugely important for long-term survival.»**



**Compared to standard PE, the vitamys material promises better wear properties. Do you believe that these are of clinical relevance?**

In terms of pain relief and shoulder function, data and experience have shown better results with the replacement of the head and glenoid in cases of shoulder arthritis compared to a hemiprosthesis. This highlights the importance of a long-lasting glenoid component that is the aim of with the improved vitamys PE. This more wear-resistant material raises the

prospect of further improvements in terms of implant lifespans. This is of major relevance to active patients and young patients who are treated with a total shoulder replacement.

**Numerous studies have failed to show any clinically significant differences between peg and keel glenoids. Do you believe the 2-peg design from Mathys offers any advantages in terms of operating technique or revision rates?**

The cementing technique is the key here. With a good cementing technique a complete cement mantle of 1 to 1.5 mm should be achieved with consolidation of the cement in the cancellous bone layer. A thicker cement mantle is more prone to stress and larger micro-motions.

**«The position of the implant can now be achieved with greater certainty due to the improved instrumentation and retractors.»**

In my view, a more precise, thinner cement mantle and a higher degree of cement consolidation around the pins can be achieved with a pegged glenoid than with a keel glenoid. This 2-peg design allows good anatomical positioning and cementing, and provides excellent primary stability. These are advantages that, to me, are crucial when it comes to choosing an implant.

**What are you expecting from future anatomical glenoid innovations?**

Press-fit anchored, metal-back glenoids like the RM Pressfit cup used in hip replacements, with a thin titanium layer, could be an interesting development. Revision glenoids for the reconstruction of bony defects will also be required for anatomical to anatomical revision surgery.

**Dr Frauenschuh, thank you for talking to us today!**

## Mobile robot-assisted surgery training

Surgeons who want to practice their robot-assisted surgery skills in the office, at home or on holiday can now do so with FlexVR™, the first portable robot console simulator. This compact surgical robot simulator comprises a laptop with two manual controllers on the sides, a foot switch, a 3D monitor and glasses, a touchpad, and keyboard and arm rest. The FlexVR™ system is appropriate in the context of robot-assisted surgery for learning or perfecting skills such as camera control, instrument control and other basic elements of robot-assisted surgery.



All of the practice sessions are analysed by the computer and graded, so that progress between sessions can be monitored. The concepts that are learned on this system are also transferred seamlessly to the robot-assisted surgery console. The FlexVR™ system uses the same software that can be found on the dv-Trainer® and the da Vinci® Skills Simulator.

The system was developed by Mimic, a company based in Seattle, Washington, USA.

To find out more about the new portable surgical robot simulator, visit [www.mimicsimulation.com/products/flexvr/](http://www.mimicsimulation.com/products/flexvr/).





# Relative Effect per Patient (REPP) Immediate outcome measurement in joint repl

By Dr Jörg Huber, Head of the Orthopaedic Department at Stadtspital Triemli, Zürich, Switzerland

The REPP formula (Relative Effect Per Patient) and calculation of the responder rate (success rate) are ideal for measuring treatment success in the management of arthritis.

Degenerative conditions of the musculoskeletal system are the most common causes of chronic pain and physical disability. They are responsible for around 1/3 of healthcare costs in Europe. Compared to other major conditions such as cardiovascular disease, measuring the impact of arthritis and its treatment is a difficult task and the methods used to do it are not very well developed.

With cardiovascular disease, numerous parameters can be measured, including blood pressure, heart rate, cardiac enzymes, stress tests, ejection fraction, heart wall thickness, the condition of the valves, and so on. The amount of information gleaned is greater, and this has resulted in a rapid improvement in treatment methods and outcomes in this field.

By comparison, the measurement of the impact of arthritis and its treatment is still in its infancy, despite its widespread existence and economic importance. Significant progress can be achieved by the use of symptom based questionnaires, using a new statistical method. This work intends to show how arthritis can be documented and treatment success individually quantified. All of the findings have been learned through many steps, discussions and years of collaboration, in particularly with Prof. Jürg Hüsler (Bern), Prof. Andy Judge (Oxford), Prof. Paul Dieppe (Bristol), Prof. Robert Theiler (Zürich), Dr Georg Ruffin (Aarau), Dr Essam Dabis (Aarau) and others.

### Measurement of degenerative joint diseases

Degenerative joint diseases cause symptoms, deformity, limitation of function (poor movement/loss of stability/weakness) and restrictions in everyday activities. A common feature of the degenerative conditions of all the joints are the symptoms of pain on movement or exertion, pain at night and joint stiffness. The other parameters such as deformity, poor movement, loss of stability and restrictions in everyday activities vary significantly from joint

to joint, and are difficult to quantify (angle, stability, etc.).

### Hidden data exposed

The progress that this new method has brought can be illustrated using the example of a hip replacement. In the EUROHIP study, 1327 patients who underwent hip replacement for arthritis at 20 European orthopaedic centre hospitals in 12 countries completed questionnaires before surgery and one year afterwards. In an evaluation using previous methods, there was a significant reduction in the median symptom score (WOMAC) from 58.3 to 15.6 for all patients after one year ( $p < 0.005$ ).<sup>1</sup> This gives the impression that all of the patients enrolled experienced an improvement. **In reality, however, 16 % of the patients had no improvement at all or in fact a deterioration.**<sup>2</sup> This

shows that the methods used to date are insufficient to accurately quantify the reduction in symptoms on a case by case basis. However this is exactly what patients expect. This new method now makes this possible.

### Measuring treatment success with REPP

The REPP (Relative Effect Per Patient) allows success to be calculated easily for each individual patient and corresponds to a reduction in symptoms (Table 1).<sup>2</sup> A REPP of 1 (maximum) after treatment, represents a symptom-free patient. If the score is 0, the symptoms are unchanged. If the score is above 0.2, the patient has noticed a reduction in their symptoms. This means that the patient has responded to the treatment and is classed as a «responder» (treatment success).<sup>3</sup> In the EUROHIP study, the success rate was 84 %.

**REPP =** 
$$\frac{\text{(Symptoms before - Symptoms after)}}{\text{Symptoms before}}$$

**Example 1:** Pre-operative score 48, post-operative score 0;  $REPP = (48 - 0) / 48 = 48 / 48 = 1$

**Example 2:** Pre-operative score 25, post-operative score 16;  $REPP = (25 - 16) / 25 = 9 / 25 = 0.36$

**Example 3:** Pre-operative score 20, post-operative score 35;  $REPP = (20 - 35) / 20 = -15 / 20 = -0.75$

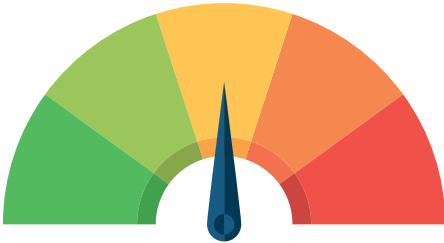
Table 1 Calculating the REPP

Joint replacement	Number	Average age	Proportion of responders
Hip (KS Aarau)	170	67.9 years	91 %
Hip (EUROHIP)	845	65.7 years	84 %
Knee (KS Aarau)	71	70.4 years	81 %
Shoulder (Affinis Inverse DFCH)	140	78.9 years	97 %

Table 2 Comparison of proportion of responders



## An addition to the twinSys family – additional sizes for an even broader portfolio



### Looking to the future

The success of treatment for arthritis can be measured using the REPP. The proportion of responders to hip, knee and shoulder joint replacements have been measured in a previously unpublished study (Table 2).

### Universal patient questionnaire

As many studies have demonstrated, questionnaires can reliably reflect subjective symptoms. However until now, questions for individual joints documented neither the localisation of the symptoms nor their nature.

Since **more than 60 per cent** of patients have symptoms affecting multiple joints simultaneously, a «universal» patient questionnaire is appropriate.<sup>4</sup>

This questionnaire is suitable for measuring the arthritic symptoms of all joints, including the spine. On its reverse, the type, location, nature and severity of symptoms can be documented and the complaint score determined.

### Sources

<sup>1</sup> Judge A, Cooper C, Williams S, et al. Patient-reported outcomes one year after primary hip replacement in a European Collaborative Cohort. *Arthritis Care Res (Hoboken)*. 2010;62(4):480-8.

<sup>2</sup> Huber J, Dabis E, Zumstein MD, Hüsler J. Relativer Effekt pro Patient (REPP) – Ergebnisgruppen für Hüfttotalprothese und Knie totalprothese. *Z Orthop Unfall*. 2013;151(3):239-42.

<sup>3</sup> Huber J, Hüsler J, Dieppe P, et al. A new responder criterion (relative effect per patient (REPP) > 0.2) externally validated in a large total hip replacement multicenter cohort (EUROHIP). *Osteoarthritis Cartilage*. 2016;24(3):480-3.

<sup>4</sup> Huber JF, Zuberbühler U, Dabis E, et al. A simple orthopaedic patient questionnaire to measure symptoms and disabilities--validation and experience. *Z Orthop Unfall*. 2008;146(6):793-8.

*The twinSys system has been used for virtually every indication for a total hip replacement since 2003. Since the anatomy of the proximal femur can vary considerably, the twinSys stem is already available in various types and numerous sizes. From 2018, the twinSys family will grow by a further six uncemented sizes.*

The twinSys stem is based on the philosophy of the conical Müller straight stem. Based on the Müller philosophy, the rounded design of the twinSys attempts to keep the area of the greater trochanter largely in alignment at its shoulder. The choice between cemented and uncemented options with the same set of instruments also offers excellent intra-operative flexibility.

### Advantages of the uncemented twinSys stem

- ◆ Triple taper design to convert shear forces into compressive forces and achieve good primary stability
- ◆ Proximal fin structure with the aim of reducing post-operative subsidence
- ◆ Hydroxyapatite coating to accelerate bone growth onto the prosthesis and achieve good secondary stability
- ◆ 7A\* ODEP rating<sup>1</sup>



The uncemented twinSys stem is available as an XS, standard, lateral and long type; the standard and lateral versions have previously been available in sizes 9 to 18, the X version in sizes 7 to 10 and the long version in sizes 12 to 15.

**From 2018, six additional uncemented sizes will be joining the portfolio:** for the twinSys XS the two sizes 11 and 12, and for the twinSys Standard and twinSys Lateral sizes 7 and 8.

### Advantages of the cemented twinSys stem

- ◆ Triple taper design with thin cement mantle to reduce the risk of post-operative subsidence
- ◆ Highly polished surface to absorb micro-movements at the implant/cement mantle interface and thereby reduce the risk of loosening
- ◆ 7A\* ODEP rating<sup>1</sup>

The cemented twinSys stem is available in a standard and lateral version in 8 sizes (9 to 16).

<sup>1</sup> The latest ODEP rating can be found at [www.odep.org.uk](http://www.odep.org.uk).



# Patient education meetings

## Curtain up

*Successful patient education meetings are entertaining, stimulating and educational – and designing them is like creating a good piece of theatre. The hospital and its staff are the lead actors and showcase themselves to their audience «live». This direct interaction has a highly trust-building effect, provided the plot is a good one and the message comes across.*

To remain viable for the future, hospitals need to offer excellent medicine and care – and ensure that patients know about it. Hospitals not wanting to leave their income to the mercy of referrers or media reporting carry out regular patient education meetings. Whether it be a hospital-wide «open doors day», a special «Knee Day» or other indication-specific and subject-specific campaigns, these events all have one thing in common: they build a bridge between the patient’s powerful need for healthcare information and the hospital’s medical services. The great advantage of this is that, with a reasonable amount of effort, information can be provided on new treatments and surgical techniques as well as the surgeons’ experience and expertise. The patient educational meeting provides an opportunity for dialogue and to establish trust.

To win patients in this way and to encourage their loyalty, perfect preparation and skilful management are essential. If you follow these suggestions on how to stage manage your event, applause is guaranteed:

**Behind the scenes: define the objective and message**

Every patient educational meeting requires a concept, a content framework and an over-arching topic. What purpose are you pursuing with the open doors day? What aims need to be achieved, what information communicated? Your hospital open day needs a conceptual, common theme and a motto for its content. When choosing your topic, it

is a good idea to put yourself in the patient’s shoes. What currently interests patients and people in the region in particular? Alongside medical issues, healthcare policy questions may be of relevance.

The choice of topic is an ideal opportunity to make people aware of one of the hospital’s unique selling points, or a particular speciality. This may be the decades of experience that the new clinical lead has gained from thou-



sands of knee joint operations, specialisation in minimally invasive procedures or acute pain treatment that ensures patients are virtually pain-free before, during and after an operation. Choose a topic that your patients understand and which appeals to them, such as «The Courage to Have a New Hip». Use the attention generated by national or global action days such as «Doors Open Day», «National Hospital Week», «Back Health Day» or

«World Osteoporosis Day» to highlight the event and add your own twist to it.

**Before the premiere: develop the plot**

Patient events need a plot, similar to a theatre performance. A classical interpretation comprises three acts: 1. Exposure, 2. Confrontation, 3. Conclusion.<sup>1</sup> The exposure part is a form of introduction. This is where the problem is defined, such as the medical issue, the condition, the treatment, the burdens on the patient, etc. In the main part, the confrontation, this problem is examined from various perspectives. The final act, the dénouement, then provides the solution to the problem. An example: You are planning a one-hour patient event entitled «Walk without pain without any visible scarring – minimally invasive joint replacement». The first 15 minutes should introduce the problem, such as arthritis, pain, surgical procedures, etc. After this, plan 30 minutes for the confrontation, i.e. where the issue is examined from various perspectives and «dramatised» further, with the risks of surgical intervention versus improved quality of

life, the pros and cons of minimally invasive surgery and the advantages of different prosthesis designs being discussed. In the final 15 minutes, show the audience your solution, for example the new surgical technique which you use for endoprosthetic procedures of the hip.

**On stage: appeal to all the senses**

Professionally staged events appeal to the senses – providing tactile experiences and

## Further reading

- ◆ Kilkenny S.  
The Complete Guide to Successful Event Planning;  
Atlantic Publishing Company; 3<sup>rd</sup> edition; 2016
- ◆ Frissen R, Janssen R, Luijter D.  
Event Design handbook: Systematically design innovative events using the Event Canvas.  
BIS Publishers; 2016
- ◆ Event Marketing: How to successfully promote events, festivals, conventions, and expositions.  
John Wiley & Sons; 2<sup>nd</sup> edition; 2012



## Applause for your patient event!

In advance of a patient event, a number of things need to be considered and planned carefully to ensure the event is a success. This is especially true if the event is not just a presentation, but rather an «open doors day». When is the best time? Who should be invited, and when?

The answers to these and other questions can be found in the new «Preparing for patient events» checklist from Mathys, which contains a number of helpful hints to ensure you earn applause and keep your hospital in patient's minds.

Request your checklist free of charge today!

- ◆ Using the attached fax reply form:  
+41 32 644 1 161
- ◆ Or just send an e-mail:  
move@mathysmedical.com



encouraging the audience to get involved. This not only makes your event varied and entertaining, but it also means that people remember it for longer. Vary the ways in which you present information: for example with dual presentations in which two clinicians play verbal ping-pong, a round table in which various opinions and perspectives can be specifically highlighted or a «speaker's corner» where experts answer questions.

In addition to presentations on the various conditions or surgical methods covered, in-

terested visitors can also be invited to take a direct look inside an (artificial) joint during a demonstration arthroscopy. Children are certainly excited by a quick course in plastering, where they get to take their own plaster arm cast home with them. Real patient stories are especially credible and good for building trust: ask one of your patients to report on their experiences of their hip surgery, and how their life has changed with the joint replacement. This takes away the audience's fears over such a procedure much more effectively than statistical surgical success rates.

As the director of a patient event, centre the message and plot around the particular medical services your hospital has to offer. Be brave and imaginative, come up with emotional concepts and make a lasting impression on your audience.

<sup>1</sup> Field S. The Screenwriter's Workbook. Delta; 2006.

## Masthead

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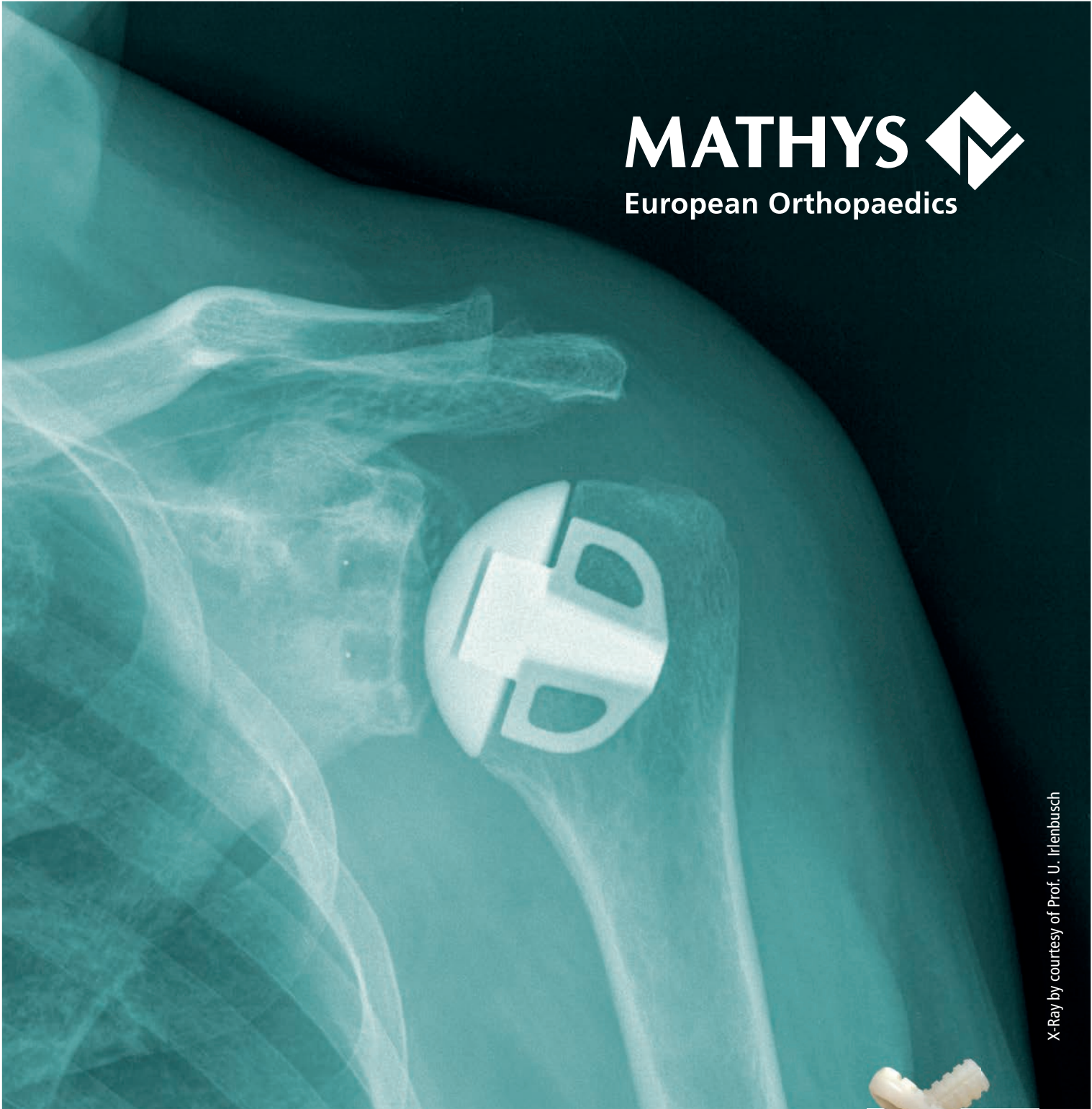
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*move!* is published by Mathys Ltd Bettlach – your competent partner for total arthroplasty. With new, useful information, *move!* is addressed to specialists in orthopaedics and traumatology in hospitals and practices, as well as all specialist and management staff in the medical field, nursing staff and general management in hospitals. We would like to thank all of those who have helped us in real-

ising the publication of *move!* by making individual contributions, or providing information and photographs. Do you have some news or tips about orthopaedics and or clinical practice for us? You would like to make your own contribution to *move!* We would be pleased to hear from you. Please use the enclosed fax form. Or, you can contact us directly by telephone or using E-mail.





X-Ray by courtesy of Prof. U. Irlenbusch

Affinis® Short with vitamys® Glenoid

# Longevity

- Ideal restoration of centre of rotation & shoulder joint anatomy
- High oxidation, ageing & wear resistant vitamys glenoid
- Completely nickel-free, ideal for hypersensitive patients

