

PRP-Battle

- Dr. Jaak Roos
- Dr. Erik Vanlommel

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Gij mankt zo?!

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Nog efkes !

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Nog efkes????

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PRP man!!!!

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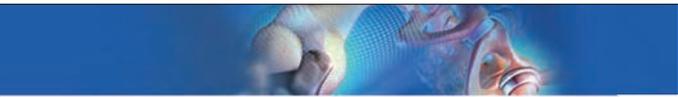


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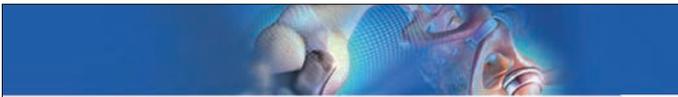



Ja, PRP!!!!

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Platelet-rich plasma!!!



Blood Withdrawal



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Inspuiten en voila!!




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Wauw!!!




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Duur?




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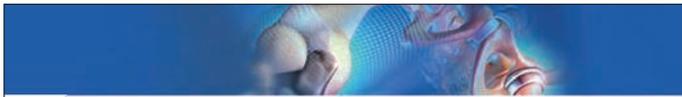
- States : 2000 \$
- EU : +/- 300 euro




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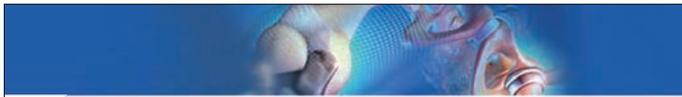

Wauw!!!




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Alleen voor Achillespezen?




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Michel Sanchez

Soft tissue injuries treated with PRP include tendonopathy, tendonosis, acute and chronic muscle strain, muscle fibrosis, ligamentous sprains, and joint capsular laxity. PRP has also been utilized to treat intra-articular injuries. Examples include arthritis, arthrofibrosis, articular cartilage defects, meniscal injury and chronic synovitis or joint inflammation.



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Believer!!!!




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Maar hij is niet alleen!!!

- > 2400000 citaties Google
- > 6335 artikels op Pubmed



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Publicatiebias!!




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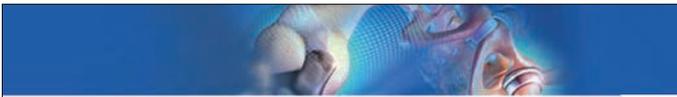
- > 2400000 citaties Google
- > 6335 artikels op Pubmed
- > Grote interesse in PRP




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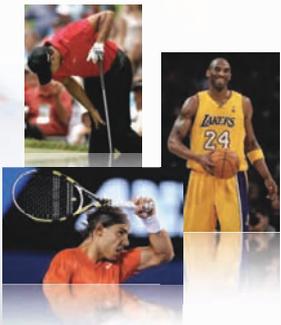

PRP werkt overal!!



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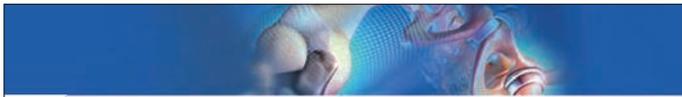
"he turned to platelet-rich plasma therapy, better known as PRP, a treatment gaining ground after headlines touting its use by elite athletes including golfer **Tiger Woods**, tennis's **Rafael Nadal** and basketball's **Kobe Bryant**."



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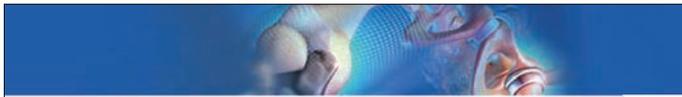




Zit de wetenschap tegenwoordig zo in elkaar?!

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The American Journal of Sports Medicine

Positive Effect of an Autologous Platelet Concentrate in Lateral Epicondylitis in a Double-Blind Randomized Controlled Trial Platelet-Rich Plasma Versus Corticosteroid Injection With a 1-Year Follow-up

1. Joost C. Peerboms, MD*, Jordi Sluimer, MD†, Daniel J. Brujin, PhD* and Taco Gossens, PhD††

Study Design Randomized controlled trial; Level of evidence, 1

Conclusion Treatment of patients with chronic lateral epicondylitis with PRP reduces pain and significantly increases function, exceeding the effect of corticosteroid injection. Future decisions for application of the PRP for lateral epicondylitis should be confirmed by further follow-up from this trial and should take into account possible costs and harms as well as benefits.

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AAOS AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS
AMERICAN ASSOCIATION OF ORTHOPAEDIC SURGEONS

2012 AAOS News: Annual Meeting

PRP Is a Useful Option for Chronic Plantar Fasciitis
Early clinical study shows improved outcomes compared to cortisone. R.R. Monto

The control group received a single ultrasound-guided injection of 40 mg methylprednisolone at the injury site. Patients in the experimental group received a single ultrasound-guided injection (3 cc) of unbuffered autologous PRP at the injury site.

At 3-month follow-up, AOFAS scores had improved for all patients. The mean score for patients in the control group was 91 (range: 60 to 90), while for patients in the experimental group it was 95 (range: 84 to 90).

However, the average score for patients in the control group fell to 74 (range: 56 to 85) at the 6-month follow-up and to 58 (range: 45 to 77) at 12 months. In contrast, the average score for patients in the experimental PRP group remained high, at 94 (range: 87 to 100) at both 6 months and 12 months

Level of evidence: Level II



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ARTHROSCOPY
THE JOURNAL OF ARTHROSCOPIC AND RELATED SURGERY

Volume 26, Issue 1, Pages 50-57, January 2010 Fernando Radice, M.D

Comparison of Magnetic Resonance Imaging Findings in Anterior Cruciate Ligament Grafts With and Without Autologous Platelet-Derived Growth Factors

Conclusions
ACL reconstruction with the use of PRPG achieves complete homogenous grafts assessed by MRI, in 179 days compared with 369 days for ACL reconstruction without PRPG. This represents a time shortening of 48% with respect to ACL reconstruction without PRPG.

Level of Evidence
Level III, case-control study.



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ARTHROSCOPY
THE JOURNAL OF ARTHROSCOPIC AND RELATED SURGERY

Rotator Cuff Repair Healing Influenced by Platelet-Rich Plasma Construct Augmentation
Barber FA, M.D.

LEVEL OF EVIDENCE: Level III Case-control study

Conclusions
The addition of 2 PRPFM constructs sutured into a primary rotator cuff tendon repair resulted in lower retear rates identified on MRI than repairs without the constructs.



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The American Journal of Sports Medicine

Platelet-Rich Plasma Augmentation for Arthroscopic Rotator Cuff Repair
A Randomized Controlled Trial
Roberto Castricini, MD

Randomized controlled trial; Level of evidence, 1

Conclusion: Our study does not support the use of autologous PRFM for augmentation of a double-row repair of a small or medium rotator cuff tear to improve the healing of the rotator cuff.



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The American Journal of Sports Medicine

Autologous Platelets Have No Effect on the Healing of Human Achilles Tendon Ruptures: A Randomized Single-Blind Study
 January 2011 vol. 39 no. 1 38-47
 Thorsten Schepull, MD



Conclusion:
 The results suggest that PRP is not useful for treatment of Achilles tendon ruptures.

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Verwarrend!!

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Onderzoek op proefdieren



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JBJS The Journal of Bone & Joint Surgery



The Effect of Platelet-Rich Plasma on Normal Soft Tissues in the Rabbit
 N. Lindsay Harris, MD; William E. Haffer, MD; Esmar van Stolk, MD; Andrew I. Larson, BSME; Shawa Phinney, MA; Mark L. Puntell, MD
 J Bone Joint Surg Am. 2012 May 02;94(9):786-793. doi: 10.2106/JBJS.J.00884

Conclusions:
 Platelet-rich plasma can initiate an inflammatory response in the absence of an inciting injury in normal soft tissue in rabbits.

Clinical Relevance:
 Platelet-rich plasma has gained widespread use clinically in the treatment of a variety of orthopedic injuries and as a surgical adjunct; however, its in vivo effect on normal tissues has not been examined in a controlled laboratory study.

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JBJS The Journal of Bone & Joint Surgery

David Edmond Lebel M.D., PhD
 Posted on May 07, 2012

A standard inflammatory response to an injected material or a marketing spin?
 Hospital For Sick Children, Toronto, Ontario, Canada

It is always a pleasure to read basic science papers in a leading musculoskeletal journal. Basic understanding of this potentially potent agent, which is being used for variety of indications, is of great importance. Although the topic is fascinating and important due to ongoing clinical research that was mentioned in the discussion section, I found the study interestingly designed. While controlling with saline injected animals we were supposed to be convinced that the inflammatory response to the injected platelet rich plasma (PRP) is unique and of a clinico-pathologic importance, I found it bothering. Wouldn't it be better while designing the study to control with a different agent such as injected BMP or even **talc powder** dissolved in saline? Since the study is completely based on histology analysis, I can't read the results other than normal inflammatory response to an injected material. A proper control would be injection of other inflammation-causing reagents and looking for the different biochemistry of the inflammatory response. Another option is downstream biochemical study to find out the biochemical distinct response to injected platelet rich plasma. Otherwise, I refer to previous cited articles in this journal evaluating clinical studies dealing with efficacy of PRP (1, 2). Lack of supporting clinical evidence regarding PRP might be not only from poor study design as stated previously(1), but from lack of proper biological activity as might be interpreted from reading this article.



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Literatuur PRP: van bedroevend tot hilarisch

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Het artsenkorps is niet innovatief genoeg!!!

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Gelukkig willen de firma's vooruit!!

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Als ge u niet goed voelt wilt ge een oplossing!!!!

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De echte wetenschappers!?

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Wetenschapper??

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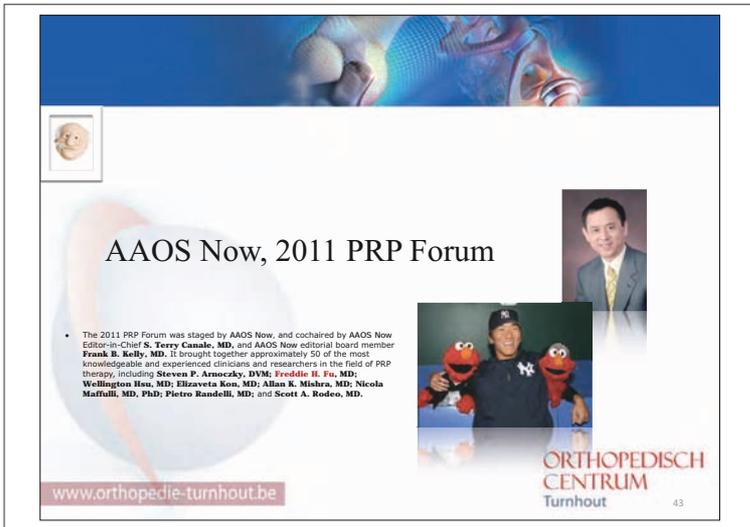
Freddie Fu



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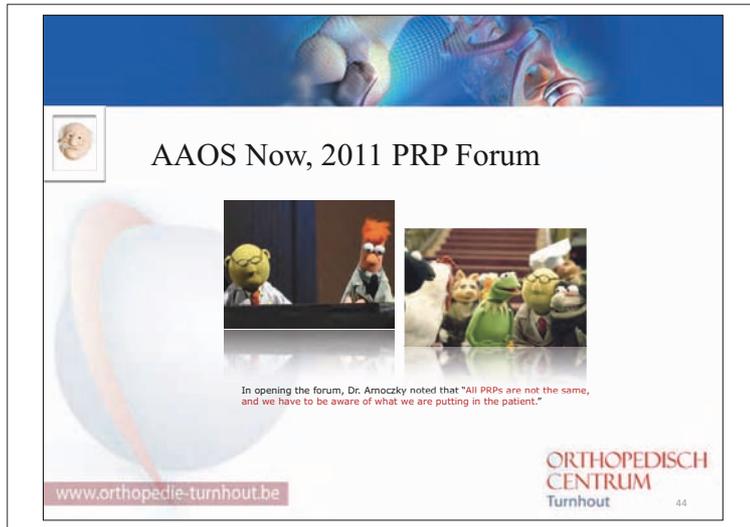


AAOS Now, 2011 PRP Forum

The 2011 PRP Forum was staged by AAOS Now, and cochaired by AAOS Now Editor-in-Chief **S. Terry Canale, MD**, and AAOS Now editorial board member **Frank B. Kelly, MD**. It brought together approximately 50 of the most knowledgeable and experienced clinicians and researchers in the field of PRP therapy, including **Steven P. Arnoczky, DVM; Freddie H. Fu, MD; Wellington Hu, MD; Ekavareta Kov, MD; Alan K. Mishra, MD; Nicola Maffulli, MD, PhD; Pietro Randelli, MD;** and **Scott A. Rodeo, MD.**

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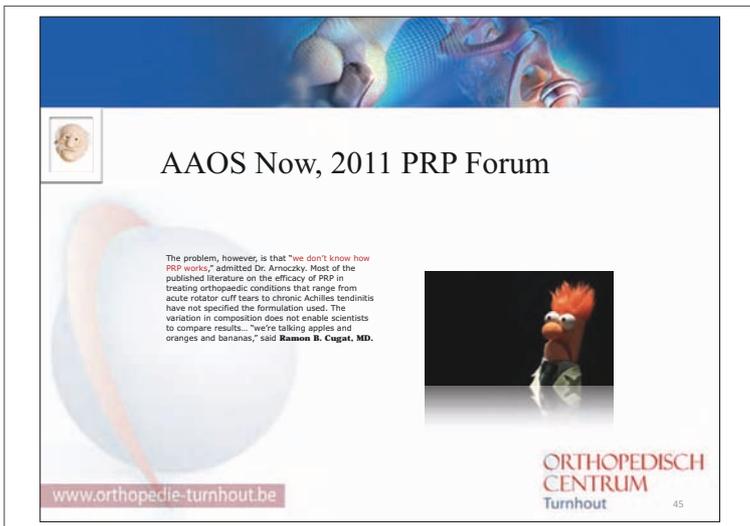


AAOS Now, 2011 PRP Forum

In opening the forum, Dr. Arnoczky noted that "All PRPs are not the same, and we have to be aware of what we are putting in the patient."

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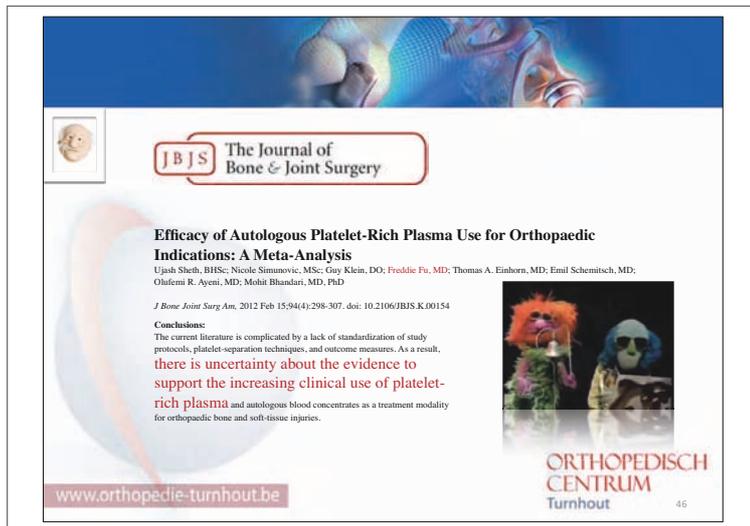


AAOS Now, 2011 PRP Forum

The problem, however, is that "we don't know how PRP works," admitted Dr. Arnoczky. Most of the published literature on the efficacy of PRP in treating orthopaedic conditions that range from acute rotator cuff tears to chronic Achilles tendinitis have not specified the formulation used. The variation in composition does not enable scientists to compare results... "we're talking apples and oranges and bananas," said **Ramon B. Cugat, MD.**

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JBJS The Journal of Bone & Joint Surgery

Efficacy of Autologous Platelet-Rich Plasma Use for Orthopaedic Indications: A Meta-Analysis
 Ujjah Shah, BHSc, Nicole Simunovic, MSc, Guy Klein, DO, Freddie Fu, MD, Thomas A. Einhorn, MD, Emil Schemitsch, MD, Oshfemi R. Ayeni, MD, Mohit Bhandari, MD, PhD

J Bone Joint Surg Am, 2012 Feb 15;94(4):298-307. doi: 10.2106/JBJS.K.00154

Conclusions:
 The current literature is complicated by a lack of standardization of study protocols, platelet-separation techniques, and outcome measures. As a result, **there is uncertainty about the evidence to support the increasing clinical use of platelet-rich plasma** and autologous blood concentrates as a treatment modality for orthopaedic bone and soft-tissue injuries.

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Typische nonbelievers!!!!

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Wetenschap >< Geloof

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Injury
Vascular cellular response

Acute inflammatory condition

- Stimulus promptly destroyed
 - Emulate resolved
 - Emulate organized
- Stimulus not promptly destroyed
 - Necrosis of cells
 - Tissue of stable or labile cells

Chronic inflammatory condition

- Tissue of stable or labile cells
 - Regeneration & resolution
 - Scarring

Schematic overview of injury-inflammation-repair-healing

KEY

- Keratocytes
- Blood vessel
- Fibroblast
- Blood clot
- Osteoclast/osteoblast
- Neutrophil
- Eosinophil
- Macrophage

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Groefactoren

Stamcellen

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Platelet Derived Growth Factor (PDGF)

- Chemo-attractive for stem cells and endothelial cells

Transforming Growth Factor (TGF- α , TGF- β)

- Promotes differentiation for connective tissue and bone

Vascular Endothelial Growth Factor (VEGF)

- Stimulates angiogenesis and chemo-attractive for osteoblasts

Insulin Like Growth Factor I (IGF-1)

- Anabolic effects, protein synthesis, proliferation of fibroblasts

Stromal Derived Factor-1 Alpha (SDF-1 α)

- Chemo-attractive for stem cells and endothelial cells

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Stem Cell Applications

- Heart repair
- Bone repair
- Skin repair
- Neurological repair
- Organ repair

Pluripotent Stem Cells

Differentiating into various cell types

Blood stem cell

- Myeloid stem cell
 - Erythrocyte
 - Platelet
 - Macrophage
- Lymphoid stem cell
 - B lymphocyte
 - Plasma cell
 - T lymphocyte
 - Natural killer cell

White blood cells

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Hoe past PRP in dit genezingsproces???

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Meer werkt beter!!

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Lekker

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Lekkerder!

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Nog lekkerder?!

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Deductie van mijn voeten!!!

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Groefactoren: wisselende expressie!

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Proliferatie >< differentiatie

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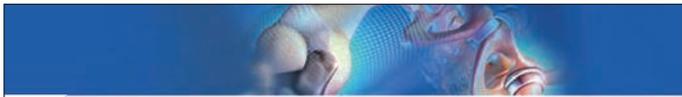
Conclusie:

Na al dat leeswerk: geen conclusie?

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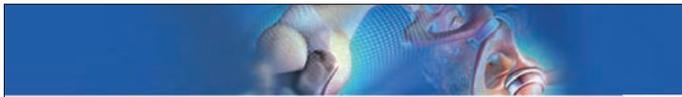

Conclusie:

95% van de literatuur over PRP is onbetrouwbaar!



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Conclusie:

Bepaalde patiënten!?
Bepaalde indicaties!?



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Conclusie:

Tenniselleboog
Hielspoor



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Conclusie:

misschien,... soms...



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Conclusie:

Onschuldiger dan chirurgie!



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Conclusie:

Te vroeg?
Is het de toekomst??



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We zullen morgen wel zien wat 't geeft:
"ik zal er niet dood van gaan!"

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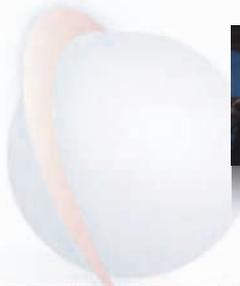
The proof of the pudding is in the eating!!



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Vragen?

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