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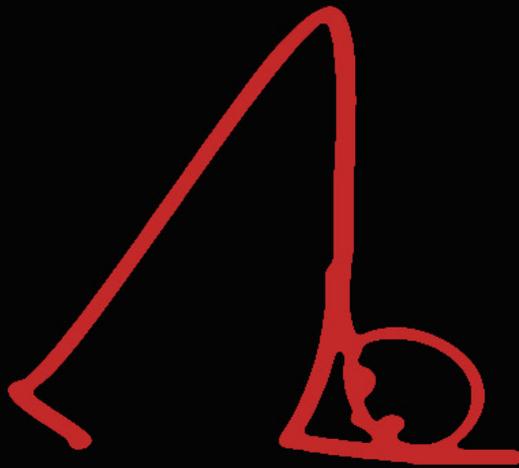
IMPROBABLE RESEARCH



SPECIAL ISSUE

Medical Surprises

a



b

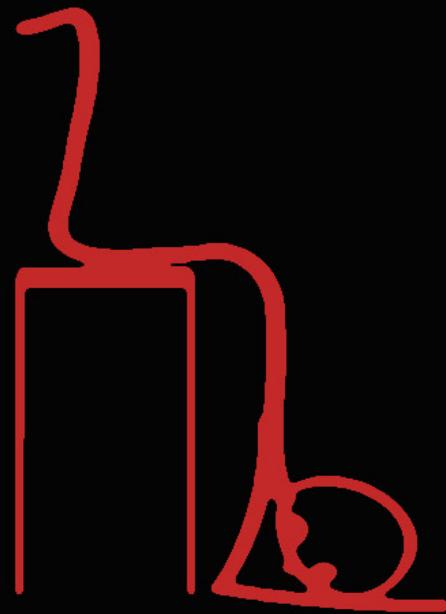


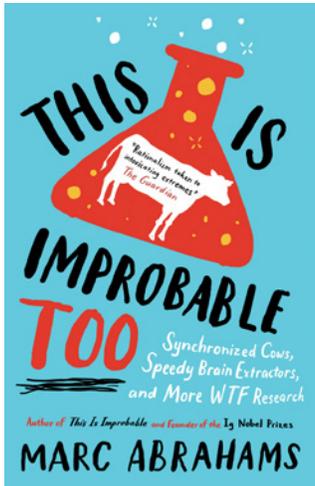
Fig. 1. Head-down position to prevent suffocation in choking (a) Simple initial position. (b) Position with the help of a stool

Spaghetti Surprise

Medical Nitroglycerine Explosions

How Surgeons Behave Like Monkeys and Apes...

Improbable Research BOOKS!

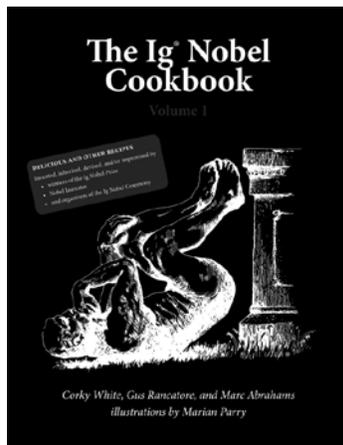


“It’s almost dementedly inconsequential”
—The Daily Mail

This Is Improbable Too

by Marc Abrahams
OneWorld Publications
ISBN 978-1780743615

“No matter how many cookbooks you’ve read, you’ve not seen one like this cookbook.”



The Ig Nobel Cookbook, Vol. 1

by Corky White, Gus Rancatore,
& Marc Abrahams
ISBN 978-1939385161

Annals of Improbable Research

© 2018 Annals of Improbable Research
ISSN 1079-5146 print / 1935-6862 online



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subscriptions@improbable.com
EDITORIAL: marc@improbable.com

Research that makes people LAUGH and then THINK



Co-founders
Marc Abrahams
Alexander Kohn



Editor
Marc Abrahams
marc@improbable.com



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“When all other contingencies fail, whatever remains, however improbable, must be the truth.”
—Sherlock Holmes

“Science is the belief in the ignorance of experts.”
—Richard Feynman

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The features marked with a star (*) are based entirely on material taken straight from standard research (and other Official and Therefore Always Correct) literature. Many of the other articles are genuine, too, but we don't know which ones.

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Where There's More

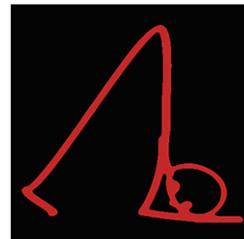
There's always new improbable — it's not what you expect! — stuff on the Improbable Research blog at IMPROBABLE.COM

ANNALS OF

IMPROBABLE RESEARCH



On the Front Cover
Methods for "Head-Down Self-Treatment of Choking." See page 16.



On the Back Cover

A isopropyl alcohol bottle's label implies the existence of many curious histories: "Do not point at self or others; product will squirt when squeezed." Photo: A.S. Kaswell.



Some Coming Events

See IMPROBABLE.COM for details of these and other events:

Many Dates

Improbable Research Table Talks
(see web site)

September 13, 2018

Ig Nobel Prize Ceremony, Harvard U

September 15, 2018

Ig Informal Lectures, MIT

September 21–November 4, 2018

Ig Nobel Exhibition, Tokyo, Japan

October 3, 2018

Orlando, FL, USA

October 4, 2018

Harvard University

October 10, 2018

Hartford, CT, USA

November 23, 2018

Annual "Science Friday" radio broadcast

February 16, 2019

AAAS, Washington, DC

March/April 2019

Ig Nobel EuroTour

AIR VENTS: TOUCHING SEEN IN AIRPORTS

Exhalations from our readers

A Collett Collector

Your special Airport Research issue was inspirational. My only prior exposure to the field was even more inspirational: As a child I once met an airport research researcher, who was the first researcher I had ever met, although I have met many researchers since that time, and have become interested in research. The researcher I met was an Oxford don, Peter Collett. I told other children about my experience, and within a span of months there sprang into existence a sort of fan club. I enclose a reproduction of one of the Peter Collett “multi-photographs” that we persuaded one of my parents, who was a printer, to print onto special Peter Collett Cards that we youthful Peter Collett connoisseurs-and-collectors club of Hebden Bridge. I especially like this particular card because it has the number 10 printed on it and I was ten years old when I met Peter Collett. And I must tell you that my favorite of all Peter Collett’s published works is his airport lounge study about seat choice:



“Seat Choice in an Airport Lounge,” Peter Collett and Peter Marsh, *Man-Environment Systems*, vol. 10, no. 2, March 1980, pp. 83-106. The authors report that:

Seating behavior of passengers in an airport lounge was videotaped. Findings show that group size had an effect on seat choice. The larger the group, the less likely it was to locate a set of seats conducive to its interests. Members often hovered on the perimeter of an area until seats became available. It was found that singles (who constituted the majority of passengers using the waiting lounge) were more particular and had a marked preference for outer seats, sometimes inadvertently excluding others from occupying certain blocks and sectors. Pairs had no particular block preferences. They focused on getting seats rather than the particular kinds of seats. The different problems that confront singles, pairs, and groups in their choice of seats are discussed.

I urge you to publish a special Peter Collett issue of your journal.

*Lee U.U. Althuser
Mytholmroyd, Hebden Bridge, West Yorkshire, UK*

A Touching Seen

While I was surprised to see your special issue devoted to Airport Research, I was not shocked. Let me tell you about my most inspiring airport research study:

“Aanraken Tijdens Begroeting op een Vliegveld. De Rol van Intimiteit, Status en Sekse [Touching During Greetings at an Airport: The Role of Intimacy, Status, And Sex]”, Anneke Vrugt, *Nederlands Tijdschrift voor de Psychologie en haar Grensgebieden*, vol. 41, no. 2, March 1986, pp. 84-90. Anneke Vrugt reports:

Observed the touching behavior among men, among women, and between men and women at a Dutch airport. The intimacy of the touch was found to correlate with the intimacy of the relationship. Men touched each other the least intimately, and men and women touched each other the most intimately. On the whole, men in this sample had the least intimate relationships with each other (business contacts and acquaintances), women usually had family relationships with each other, and men and women had family and love relationships. The hypothesis that taking the initiative in touching is an indication of the relatively high status of men and the elderly was not supported. The question of whether the sex composition in an interaction or the kind of relationship involved indicates which kind of touching behavior is suitable is discussed.

I will write you another letter some time and tell you about it.

*Gudula Petchtold, M.D.
Groningen, The Netherlands*



IMPROBABLE RESEARCH: DEAD TROUT SWIMMING, BALLOON BURSTING

Improbable theories, experiments, and conclusions
compiled by Dirk Manley, Improbable Research staff

The Dead-Trout-Swimming-Upstream Experiment

“Passive Propulsion in Vortex Wakes,” D.N. Beal, F.S. Hover, M.S. Triantafyllou, J.C. Liao, and G.V. Lauder, *Journal of Fluid Mechanics*, vol. 549, 2006, pp. 385-402. The authors, at the Massachusetts Institute of Technology and Harvard University, report:

We describe a set of experiments performed with rainbow trout (*Oncorhynchus mykiss*) within a flow channel containing a vertically mounted cylinder.... Here, we demonstrate that a dead fish may first synchronize with a vortex wake, and then move forward against the flow, well outside the suction region. This proves that trout are, in fact, capable of recovering enough energy from the unsteady wake to use it for propelling themselves....

In order to test the hypothesis that a fish can passively produce thrust through fluid-induced motion in a Kármán wake, a dead trout was tied to a string attached to a fixed vertical cylinder in a uniform flow; all tests were performed prior to *rigor mortis*.

Bursting Balloons: The Loudness Thereof

“Did You Know How Loud Balloons Can Be?,” Bill Hodgetts and Dylan Scott, *Canadian Audiologist*, vol. 3, no. 6, 2016. (Thanks to Scott Langill for bringing this to our attention.) The authors, at the University of Alberta, report:

Design: We measured balloons that were 1) inflated to rupture, 2) crushed to pop, and 3) popped with a pin.

Results: We found that, in the inflated to rupture condition, the average impulse level was more intense than a 12-gauge shotgun and nearly as intense as a 357 magnum.

Detail from the study “Did You Know How Loud Balloons Can Be?”

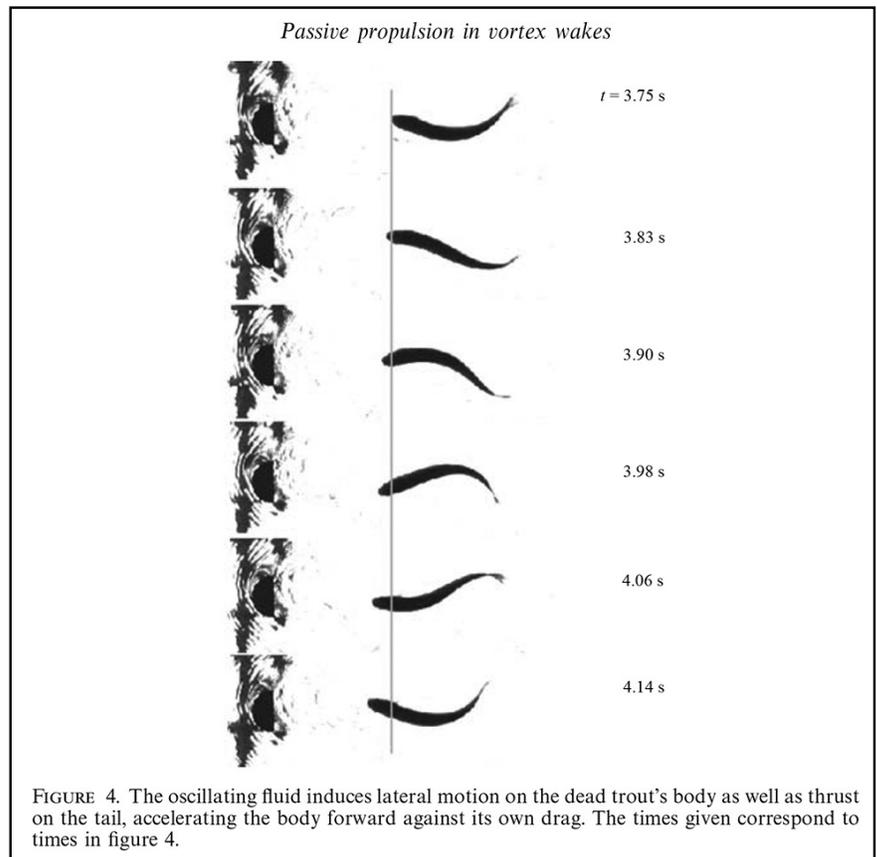


FIGURE 4. The oscillating fluid induces lateral motion on the dead trout's body as well as thrust on the tail, accelerating the body forward against its own drag. The times given correspond to times in figure 4.



SPAGHETTI SURPRISE

Breaking news about dried spaghetti and self-stimulation

by Alice Shirrell Kaswell, *Improbable Research* staff

A physics paper published in 2005 (and honored by an Ig Nobel Prize for Physics in 2006) potentially helps explain the action analyzed in a forensic medical journal report published in the year 1986.

Spaghetti, Meet Balls

“Masturbation Injury Resulting From Intraurethral Introduction of Spaghetti,” M. Bacci and M. Porena, *American Journal Of Forensic Medicine And Pathology*, vol. 7, no. 3, September 1986, pp. 254-255. (Thanks to Bernice Floyd for bringing this to our attention.) The authors, at Perugia University, Italy, explain:

A singular case of masturbation by endourethral introduction of a piece of spaghetti is reported. We became aware of the case because fragmentation of the spaghetti caused a cicatricial stenosis of the urethra that required surgical treatment....

A 20-year-old man came to the Polidinic Hospital because of the presence of an endourethral foreign body. Asked about the nature of the foreign body and the purpose of introducing it, he answered, with perplexity, that some days before he had introduced into his urethra, for masturbation, a piece of spaghetti, which broke into fragments.

Afterwards he felt urethral burning, deviation, and hypovalidity of the urinary stream, abnormal curvature of the penis during erection, and inguinal lymphadenopathy....

In such cases, it is always very difficult to find the real causes of the lesions because the patient is reticent about the facts. In our case, had the foreign body not been retained, it would have been impossible to discover the real etiology of the cicatricial lesion.

Masturbation Injury Resulting from Intraurethral Introduction of Spaghetti

M. Bacci, M.D., and M. Porena, M.D.

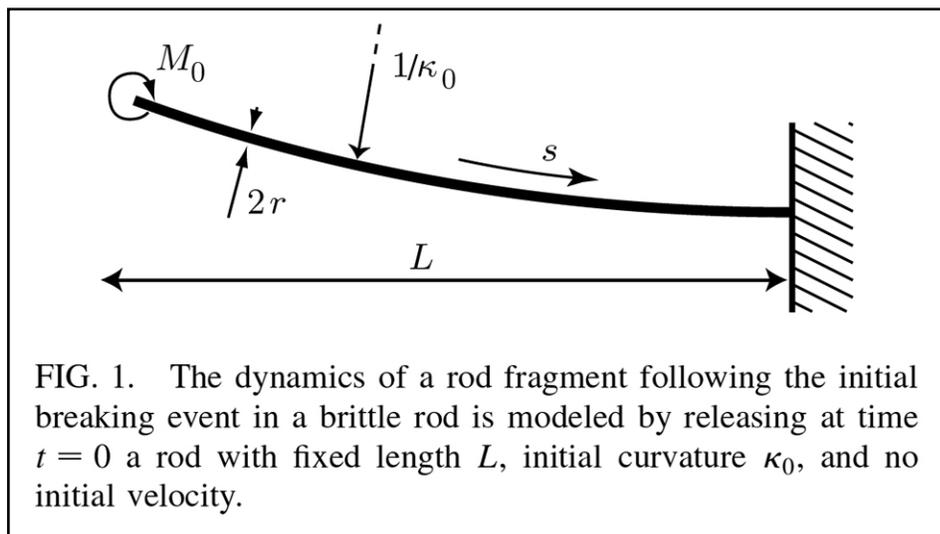
A singular case of masturbation by endourethral introduction of a piece of spaghetti is reported. We became aware of the case because fragmentation of the spaghetti caused a cicatricial stenosis of the urethra that required surgical treatment.

Among several autoerotic practice literature (1,2), the use of endourethral different tools is mentioned relative

Why Does Spaghetti Almost Always Break into More Than Two Pieces?

A basic physics analysis—of how and where a dried spaghetti strand breaks—is complicated. In the simplest form of the question, the strand is in the open air with somebody or something holding it at each end, slowly bending the strand until it snaps into pieces.

The situation described in the medical report “Masturbation Injury Resulting From Intraurethral Introduction of Spaghetti” is more complicated. There, the spaghetti strand is embedded within a human urethra, subjected to bending forces that are dynamic and, to be frank, difficult to describe in a simple, clean (in the physics-analysis sense of that word) mathematical model.



Detail from the study “Fragmentation of Rods by Cascading Cracks: Why Spaghetti Does Not Break in Half.”

[continued >](#)

SPAGHETTI SURPRISE [CONTINUED]

The (only relatively) simple physics version of the spaghetti-strand fragmentation question is explored in the paper:

“Fragmentation of Rods by Cascading Cracks: Why Spaghetti Does Not Break in Half,” Basile Audoly and Sebastien Neukirch, *Physical Review Letters*, vol. 95, no. 9, August 26, 2005, pp. 95505-1 to 95505-4. The authors, at Laboratoire de Modélisation en Mécanique, CNRS/Université Paris, France, report:

When thin brittle rods such as dry spaghetti pasta are bent beyond their limit curvature, they often break into more than two pieces, typically three or four. With the aim of understanding these multiple breakings, we study the dynamics of a bent rod that is suddenly released at one end. We find that the sudden relaxation of the curvature at this end leads to a burst of flexural waves, whose dynamics are described by a self-similar solution with no adjustable parameters.

Basile Audoly and Sebastien Neukirch were awarded the 2006 Ig Nobel Prize for Physics for the research they describe in that study.

Fragmentation of Rods by Cascading Cracks: Why Spaghetti Does Not Break in Half

Basile Audoly and Sébastien Neukirch
Laboratoire de Modélisation en Mécanique, CNRS/Université Paris VI, 4 place Jussieu, Paris, France
 (Received 22 December 2004; published 25 August 2005)

When thin brittle rods such as dry spaghetti pasta are bent beyond their limit curvature, they often break into more than two pieces, typically three or four. With the aim of understanding these multiple breakings, we study the dynamics of a bent rod that is suddenly released at one end. We find that the sudden relaxation of the curvature at this end leads to a burst of flexural waves, whose dynamics are described by a self-similar solution with no adjustable parameters. These flexural waves locally *increase* the curvature in the rod, and we argue that this counterintuitive mechanism is responsible for the fragmentation of brittle

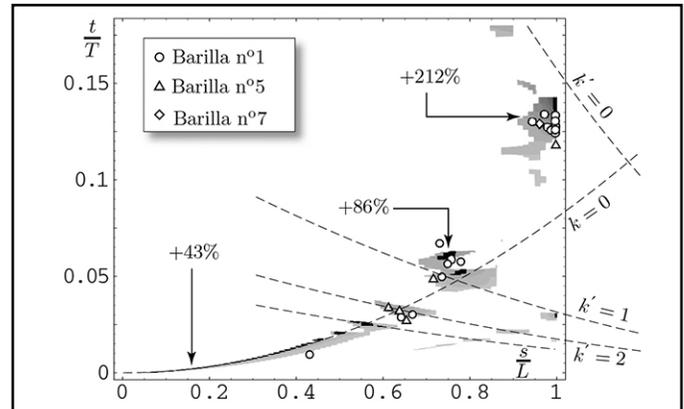


FIG. 4. Space-time diagram, in rescaled coordinates, of the breaking events obtained by repeating the experiment of Fig. 3 (data points) for different pasta radii and initial curvatures κ_0 . The time and location of curvature records predicted by numerical simulations of the full (geometrically nonlinear) Kirchhoff equations for $\kappa_0 L = \pi$ are shown in the background, with no adjustable parameters: absolute records (black) and local ones (gray). The breaking events are concentrated on islands that lie approximately at the intersection of the paths (dashed lines) followed by local maxima of the incident and reflected waves (see main text). Percentages show the relative increase of curvature κ/κ_0 at selected points.

Further detail from the study “Fragmentation of Rods by Cascading Cracks: Why Spaghetti Does Not Break in Half.”

Spaghetti Specificity

The Audoly/Neukirch physics paper does not cite the “masturbation analysis” paper, but it does specify the kinds of spaghetti that Audoly and Neukirch analyzed:

Twenty-five experiments were carried out with various pasta diameters:

Barilla no. 1 with $r_1 = 0.57$ mm and $\gamma_1 = 0.521$ m²/s

Barilla no. 5 with $r_5 = 0.84$ mm and $\gamma_5 = 0.735$ m²/s

Barilla no. 7 with $r_7 = 0.95$ mm and $\gamma_7 = 0.82$ m²/s

and initial curvatures (in the range 9:7–15:3 m⁻¹), with L around 24 cm

The Bacci/Porena medical paper does not specify the kind of spaghetti that Bacci and Porena removed from their patient’s urethra.



Barilla spaghetti number 5. This is one of the three types of spaghetti examined in the Audoly/Neukirch physics paper. The Bacci/Porena medical paper does not specify the type of spaghetti found in a man’s urethra.

continued >

SPAGHETTI SURPRISE [CONTINUED]

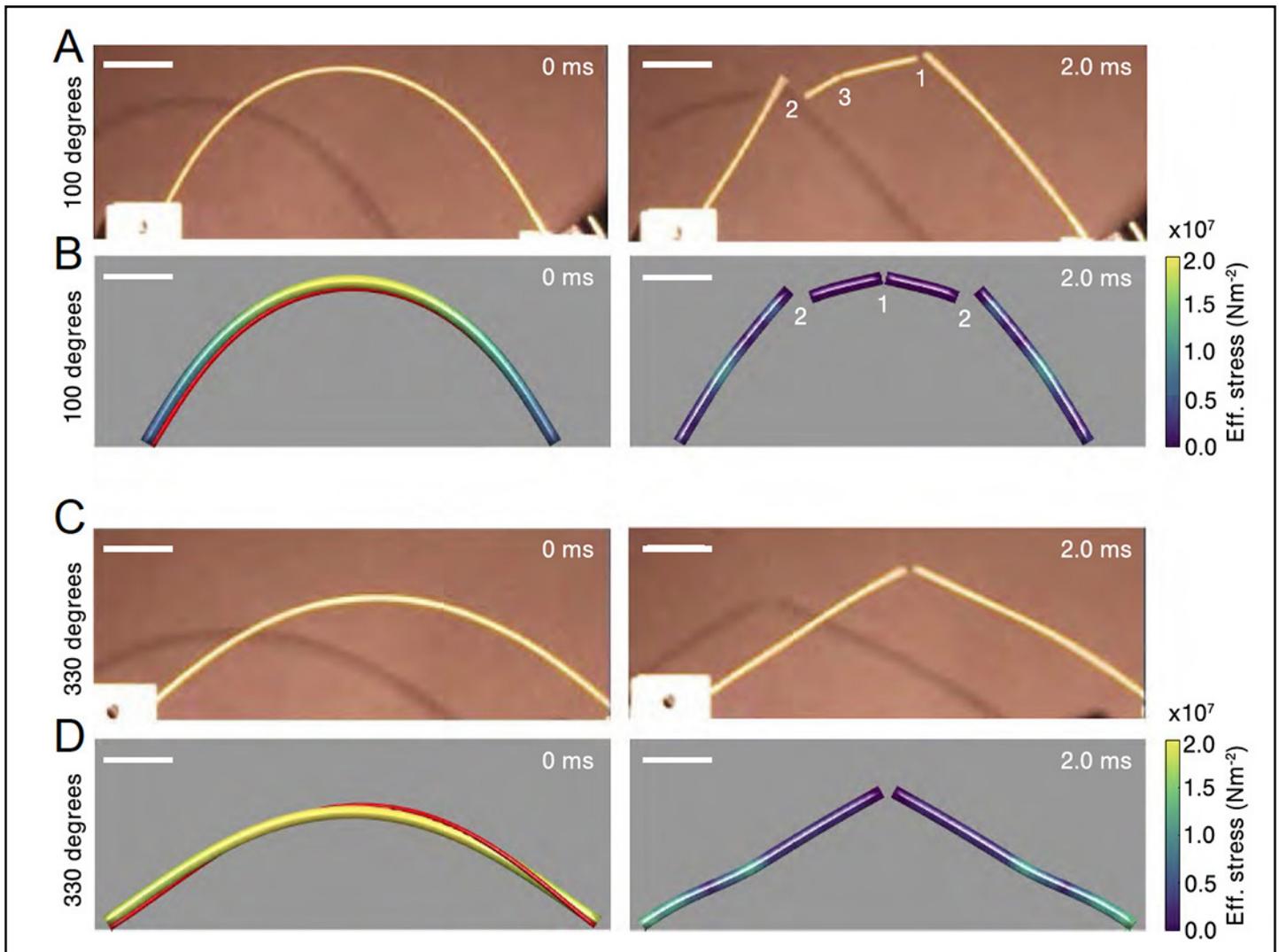
Yes, to Two

The latest spaghetti news deals with something of a breakthrough on the basic physics question:

“Controlling Fracture Cascades Through Twisting and Quenching,” Ronald H. Heisser, Vishal P. Patil, Norbert Stoop, Emmanuel Villermaux, and Jörn Dunkel, *Proceedings of the National Academy of Sciences*, 2018. The authors are at Cornell University, the Massachusetts Institute of Technology, Université Aix Marseille, and the eCNRS/MIT/AMU Joint Laboratory, build on Audoly and Neukirch’s Ig Nobel Physics Prize-winning study.

Heisser and colleagues report that a method—*twisting* as well as bending—by which they induce a strand of dried spaghetti to break into *only two, not more than two*, pieces:

A well-known problem with direct implications for the fracture behavior of elongated brittle objects, such as vaulting poles or long fibers, goes back to the famous physicist Richard Feynman who observed that dry spaghetti almost always breaks into three or more pieces when exposed to large bending stresses. While bending-induced fracture is fairly well understood nowadays, much less is known about the effects of twist. Our experimental and theoretical results demonstrate that twisting enables remarkable fracture control by using the different propagation speeds of twist and bending waves.



Detail from the study “Controlling Fracture Cascades Through Twisting and Quenching.”

SURPRISES ABOUT PATIENTS

Unexpected this and that, from or for patients

by Marina Tsipis, *Improbable Research staff*

Consequences of a Wedgie for a 50-Year-Old Man

“Wedgie-Associated Radiculitis in a Quinquagenarian,” Courtney E. Sutherland, Toban Dvoretzky, and Nicholas J. Solomos, *Proceedings* (Baylor University Medical Center), vol. 29, no. 4, 2016, pp. 389-390.

Wedgies—the upward yanking of another’s underpants from the rear to wedge them between the buttocks—can be administered playfully, maliciously, or adventurously; at forces ranging from gentle to “atomic”; and with or without the foreknowledge or consent of the recipient. Wedgies have been documented anecdotally in the popular Internet literature, with chief emphasis on their sensation-seeking or momentary entertainment value to the giver and recipient. Most participants are typically young; however, we report the case of a 50-year-old man who sustained chronic, painless radiculitis after he received an unanticipated wedgie of moderate force.



Courtney E. Sutherland, lead author of the study “Wedgie-Associated Radiculitis in a Quinquagenarian.” Drawing by Nan Swift, Improbable Research staff.

Wedgie-associated radiculitis in a quinquagenarian

Courtney E. Sutherland, MD, MBA, Toban Dvoretzky, BA, and Nicholas J. Solomos, MD

Wedgies—the upward yanking of another’s underpants from the rear to wedge them between the buttocks—can be administered playfully, maliciously, or adventurously; at forces ranging from gentle to “atomic”; and with or without the foreknowledge or consent of the recipient. Wedgies have been documented anecdotally in the popular Internet literature, with chief emphasis on their sensation-seeking or momentary entertainment value to the giver and recipient. Most participants are typically young; however, we report the case of a 50-year-old man who sustained chronic,

added that his wife had been so disturbed by this in 2009 that she had stopped giving him wedgies

DISCUSSION

We monitored this patient over several years. The problem that we think resulted from a wedgie was first reported on PubMed for “wedgie” and the Spanish term “cañero” yielded no previous descriptions; indeed, some cultures seem to have no word or concept for

He Ate It, She Vomited

“Anaphylaxis Secondary to Contact with a Vomited Food Allergen,” Leah R. Chernin, David A. Swender, Robert W. Hostoffer, and Haig Tcheurekdjian, *Annals of Allergy, Asthma and Immunology*, vol. 109, no. 4, 2012, p. 279. (Thank to Brenda Goodman for bringing this to our attention.) The authors, at University Hospitals Richmond Medical Center, Ohio; Allergy/Immunology Associates, Inc.; and Case Western Reserve University report:

We describe a case of anaphylaxis secondary to contact with a food allergen in another child’s emesis.... At 13 months of age the patient’s brother ate macaroni and cheese and corn bread for dinner. Four hours later the patient and her brother were lying in bed together, and he vomited on her. The emesis came in contact with the patient’s eyes, nose and mouth. Within 10 minutes she developed urticarial lesions surrounding the right eye, bilateral eyelid edema, and tearing of the eyes. The patient’s mother gave her a bath and noticed labored breathing within 20 minutes of the child coming in contact with the emesis.... To our knowledge this is the first report of anaphylaxis secondary to contact with a food allergen in another child’s emesis.

Anaphylaxis secondary to contact with a vomited food allergen

Allergic reactions to food allergens have been reported after exposure to food antigens through various routes of contact. Anaphylaxis to foods ingested by another individual has, to our knowledge, not been previously reported. We describe a case of anaphylaxis secondary to contact with a food allergen in another child’s emesis.

allergens were consumed, and after 4 hours of digestion the patient was able to elicit an allergic response in a sensitized individual who was exposed to antigens in another individual’s emesis. This case depicts that the food allergens were able to maintain their allergenicity despite going through 4 hours of digestion.

[continued >](#)

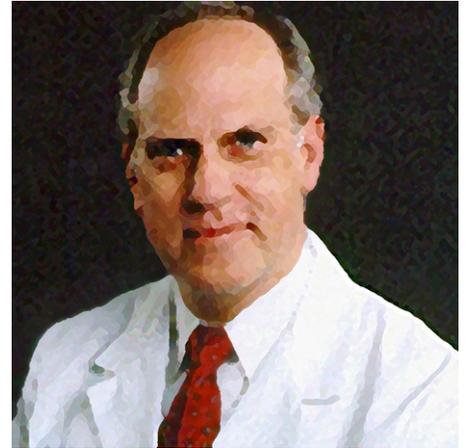
SURPRISES ABOUT PATIENTS [CONTINUED]

Bourdonnement and Other Benign Temporary Breast Implant Sounds

Richard Dowden, MD

nds may be
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ful for the

air from the developing pocket out into the surrounding tissues. It is a painless crackling sensation mostly felt by palpation, but it can also be heard under quiet conditions. For some reason, patients imagine that this signifies leaking of the implant. Crepitation can be minimized by using a



Richard Dowden, lead author of the study “Bourdonnement and Other Benign Temporary Breast Implant Sounds.” Drawing by Nan Swift, Improbable Research staff.

Patients Are Alarmed by Their Buzzing, Squeaking Breasts

“Bourdonnement and Other Benign Temporary Breast Implant Sounds,” Richard Dowden, *Annals of Plastic Surgery*, vol. 43, no. 6, December 1999, pp. 589-591. (Thanks to John Bell for bringing this to our attention.) The author, at Case Western Reserve University, explains that:

During the early postoperative period, a variety of sounds may be detected emanating from the augmented breast. These sounds are nearly always benign and are temporary. The sounds can be described as crepitation, popping, sloshing, squeaking, buzzing, and humming, and a new term, “bourdonnement,” is applied to one of these phenomena. Patients are understandably alarmed by sounds emanating from their breasts, and it is helpful for the surgeon to be able to discuss them, and to reassure the patient of the lack of any long-term significance of the phenomena. This report includes intraoperative techniques by which some of the sounds can be avoided or minimized.

Medically Induced Creation of a Poet

“Compulsive Versifying After Treatment of Transient Epileptic Amnesia,” Ione O.C. Woollacott, Phillip D. Fletcher, Luke A. Massey, Amirtha Pasupathy, Martin N. Rossor, Diana Caine, Jonathan D. Rohrer, and Jason D. Warren, *Neurocase*, vol. 21, no. 5, 2015, pp. 548-553. (Thanks to Ivan Oransky for bringing this to our attention.) The authors, at University College London, the Hertfordshire Partnership NHS Foundation Trust, and the National Hospital for Neurology and Neurosurgery, London, UK, report:

We present a patient with transient epileptic amnesia and a left temporal seizure focus, who developed isolated compulsive versifying, producing multiple rhyming poems, following seizure cessation induced by lamotrigine.

Detail from the study “Compulsive Versifying After Treatment of Transient Epileptic Amnesia.”

focus. Her husband characterized them as “doggerel” because they were generally rhyming and often featured puns and other wordplay (examples in Figure 2). This

(B)

My poems rhymes,
They has no homes
Yours' also, yours,
And near moors,

Why tie, up to pier or quay?
Getter far, share them with me.

Prose - now, that's a different matter.
Rather more than just a matter.
Prose is earnest, prose is serious
Prose is totally and imperious
Prose tells you loud, clear, that
Life - life is dear.

s follow). (A) To tidy out cupboards is morally wrong / I sing you this
ut of sight, / I've regretted it. // Think of the treasures now lost to the
ubies, emeralds - you must have had them, / All tucked well away. /
hems you write up at night) / Is morally wrong. / So I'm keeping this

continued >

SURPRISES ABOUT PATIENTS [CONTINUED]

50 Sessions With the Man Who Was and Was Not Freddy Mercury

“Two Souls in One Breast—A Case Report of the Rock Star Double,” W.H.J. Martens, *American Journal of Psychotherapy*, vol. 65, no. 3, 2011, pp. 267-279. The author, at the W. Kahn Institute of Theoretical Psychiatry and Neuroscience, Nijmegen, The Netherlands, explains:

A case report is presented and analyzed of a patient who was a double for and imitator of the late Freddy Mercury, lead singer for the rock group Queen.... Although impressive Freddy Mercury imago appeared to benefit the patient, mainly through social acceptance and enhanced opportunities for relationships, in the long term it could not cover up his deep-rooted and repressed identity problems. The struggle to cope with these problems is illustrated here....

Mister B., 36 years of age, contacted me because he suffered from the consequences of severe identity confusion. He had been living and working as a double and imitator of Freddy Mercury, a deceased rock singer. Mr. B. had become increasingly aware that he would never be Freddy Mercury, but also he had difficulties in accepting and showing his real self. Mister B. had done something that put him in a situation that was irreversible: He had cosmetic surgery to become a convincing look-alike and imitator of the star....

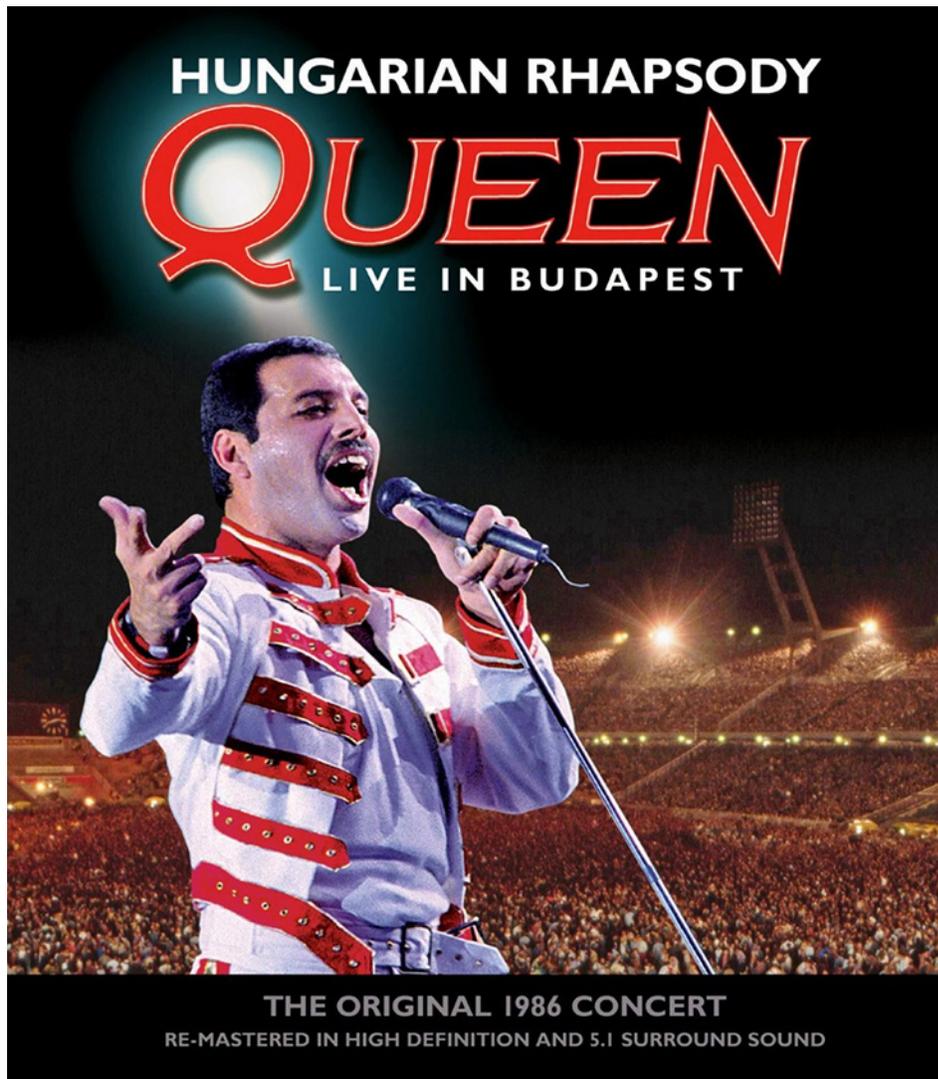
Mister B. doubted if he could endure a long-lasting and intensive therapeutic process because he was afraid that he was too fragile for it. We agreed on a limited series of 50 one-hour sessions.

A promotional poster for a recording of a concert by Freddie Mercury and his band, Queen.

Two Souls in one Breast—A Case Report of the Rock Star Double

W. H. J. MARTENS, M.D., Ph.D.

A case report is presented and analyzed of a patient who was a double for and imitator of the late Freddy Mercury, lead singer for the rock group Queen. The patient was socially excluded, rejected by his peers, and neglected by his parents. As a consequence he experienced self-hate, shame, low self-esteem,



SURPRISES ABOUT SURGEONS

Innovative and/or interesting reports about or by surgeons

by Alice Shirrell Kaswell, Improbable Research staff

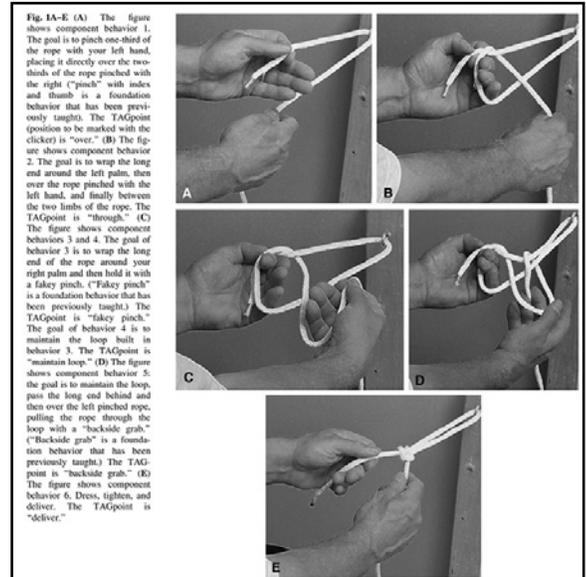
Clicker Training for Surgeons and Other Animals

“Is Teaching Simple Surgical Skills Using an Operant Learning Program More Effective Than Teaching by Demonstration?” I. Martin Levy, Karen W. Pryor, and Theresa R. McKeon, *Clinical Orthopaedics and Related Research*, vol. 474, no. 4, April 2016, pp. 945–955. (Thanks to Steve Golson for bringing this to our attention.) The authors, at Montefiore Medical Center, The Bronx, New York; Karen Pryor Clicker Training, Watertown, Massachusetts; and TAGteach International, Indian Trail, North Carolina, explain:

Behaviors in humans have been successfully reinforced using the acoustic stimulus from a mechanical clicker [a method routinely and reliably used to train dogs and many other kinds of animals], where the clicker serves as a conditioned reinforcer that communicates in a way that is language- and judgment-free; however, to our knowledge, the use of operant-learning principles has not been formally evaluated for acquisition of surgical skills....

[W]e identified two tasks from our surgical skills program, “tying the locking, sliding knot” and “making a low-angle drill hole,” and taught those skills to the test learners using an operant learning procedure. We compared the learners’ fluency (accuracy and time of performance) achieved with the operant learning approach with that achieved using a typical demonstration approach often used in surgical teaching....

The students taught using operant methods were precise, whereas our control students had a much higher rate of error; they tended to omit crucial elements of the skill, resulting in failure of performance or even damage to the tool (bent drill bits).

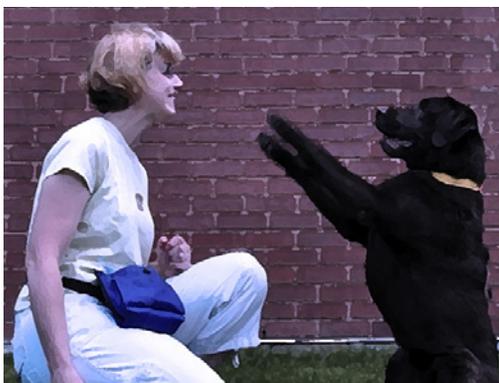


Detail from the study “Is Teaching Simple Surgical Skills Using an Operant Learning Program More Effective Than Teaching by Demonstration?”



Using a “clicker” to train a dog. This is the method used to train surgeons in the research described in the study “Is Teaching Simple Surgical Skills Using an Operant Learning Program More Effective Than Teaching by Demonstration?” Drawing by Nan Swift, Improbable Research staff.

Karen Pryor, co-author of the study “Is Teaching Simple Surgical Skills Using an Operant Learning Program More Effective Than Teaching by Demonstration?,” training a dolphin.



Karen Pryor, co-author of the study “Is Teaching Simple Surgical Skills Using an Operant Learning Program More Effective Than Teaching by Demonstration?,” training a dog.



Drawings by Nan Swift, Improbable Research staff.

continued >

SURPRISES ABOUT SURGEONS [CONTINUED]

Male Physicians, Surgeons, and Film Stars

“Phenotypic Differences Between Male Physicians, Surgeons, and Film Stars: Comparative Study,” Antoni Trilla, Marta Aymerich, Antonio M. Lacy, and Maria J. Bertran, *British Medical Journal*, vol. 333, 2006, pp. 1291-1293. (Thanks to Luke Heuer for bringing this to our attention.) The authors, at Hospital Clinic, University of Barcelona, Spain, report:

Our study shows that, on average, senior male surgeons are significantly taller and better looking than senior male physicians. It also shows that film stars who play doctors are significantly better looking than real surgeons and physicians.

Phenotypic differences between male physicians, surgeons, and film stars: comparative study

Antoni Trilla, Marta Aymerich, Antonio M Lacy, Maria J Bertran

We finished our medical training at the University of Barcelona more than 25 years ago, and have enjoyed our work ever since. At medical school we noted certain differences between male trainees who selected either surgery or medicine as their specialty. The tallest and most handsome male students were more likely to go for surgery, and the shortest (and perhaps not so good looking) ones were more likely to become physicians (including doctors of internal medicine and its subspecialties).

participants (no further checking of this information was attempted). We decided to avoid (for the time being) male observers, because of potential bias. Observers used the “good looking score” to classify each participant. This score measures the degree of handsomeness on a seven point Likert scale (1, ugly; 7, very good looking).

We discarded the highest and lowest score (outliers) for each participant and used the six remaining scores for our study. Mean scores, differences in means with

Hospital Clinic, University of Barcelona, 08036 Barcelona, Spain
Antoni Trilla
director of preventive medicine and epidemiology unit
Marta Aymerich
consultant, haematology unit
Antonio M Lacy
consultant, general

Surgeons Naked in the Operating Room?

“Naked Surgeons? The Debate About What to Wear in the OR,” Matthew Bartek, Francys Verdial, and E. Patchen Dellinger, *Clinical Infectious Diseases*, vol. 65, no. 9, 2017, pp. 1589-1592. (Thanks to Bob Meizlik for bringing this to our attention.) The authors, at the University of Washington, explain:

There has been recent controversy regarding recommendations and regulations concerning operating room attire. We performed a non-systematic literature search regarding operating room attire and surgical site infection risk. Much of the literature relies on air sampling and culture of operating room equipment but does not present evidence regarding effect on surgical site infection risk. There is no evidence regarding surgical site infection risk related to operating room attire except for sterile gowns and the use of gloves. Naked surgeons shed fewer bacteria into the operating room environment than ones wearing scrub suits.

Clinical Infectious Diseases

INVITED ARTICLE

HEALTHCARE EPIDEMIOLOGY: Robert Weinstein, Section Editor

Naked Surgeons? The Debate About What to Wear in the Operating Room

Matthew Bartek,^a Francys Verdial,^a and E. Patchen Dellinger

Department of Surgery, University of Washington, Seattle

There has been recent controversy regarding recommendations and regulations concerning operating room attire. We performed a nonsystematic literature search regarding operating room attire and surgical site infection (SSI) risk. Much of the literature relies on air sampling and culture of operating room equipment but does not present evidence regarding effect on SSI risk. There is no evidence regarding SSI risk related to operating room attire except for sterile gowns and the use of gloves. Naked surgeons shed fewer

[continued >](#)

SURPRISES ABOUT SURGEONS [CONTINUED]

Surgeons' Tone of Voice: A Clue to Malpractice History?

“Surgeons’ Tone of Voice: A Clue to Malpractice History,” Nalini Ambady, Debi LaPlante, Thai Nguyen, Robert Rosenthal, Nigel Chaumeton, and Wendy Levinson, *Surgery*, vol. 132, no. 1, July 2002, pp. 5-9. The authors, at Harvard University, report:

We examined the relationship between surgeons’ voice tone during routine office visits and their history of malpractice claims. Surgeons were audiotaped while speaking to their patients during office visits, and very brief samples of the conversations were rated by coders blind to surgeons’ claims status. Two 10-second clips were extracted for each surgeon from the first and last minute of their interactions with 2 different patients. Several variables were rated that assessed warmth, hostility, dominance, and anxiety...

RESULTS: Controlling for content, ratings of higher dominance and lower concern/anxiety in their voice tones significantly identified surgeons with previous claims compared with those who had no claims.



Nalini Ambady, lead author of the study “Surgeons’ Tone of Voice: A Clue to Malpractice History.” Drawing by Nan Swift, *Improbable Research* staff.

Surgical outcomes research

Surgeons’ tone of voice: A clue to malpractice history

Nalini Ambady, PhD, Debi LaPlante, MA, Thai Nguyen, BA, Robert Rosenthal, PhD, Nigel Chaumeton, PhD, and Wendy Levinson, MD, Boston, Mass, Riverside, Calif, and Toronto, Ontario, Canada

Background. Interpersonal aspects of care, such as the communication behaviors of physicians, are often cited as central to patients’ decisions to initiate malpractice litigation. Relatively little is known, however, about the impact of the communication behaviors of surgeons. In the current study, we investigated the relationship between judgments of surgeons’ voice tone and their malpractice claims history.

Methods. We examined the relationship between surgeons’ voice tone during routine office visits and

Surgeons and Divorce

“Medical Specialty and the Incidence of Divorce,” Bruce L. Rollman, Lucy A. Mead, Nae-Yuh Wang, and Michael J. Klag, *The New England Journal of Medicine*, vol. 336, no. 11, March 1997, pp. 800-803. The authors, at the University of Pittsburgh and Johns Hopkins University, explain:

The cumulative incidence of divorce was highest for psychiatrists (50 percent), followed by surgeons (33 percent)...

When we examined psychological variables, we found that physicians in the highest quartile for the anger scale had a higher risk of divorce than those scoring in the lower three quartiles. Moreover, the cumulative incidence of divorce among the physicians with the highest anger scores was higher than that of any other subgroup, with the exception of those practicing psychiatry.

TABLE 2. CUMULATIVE INCIDENCE OF DIVORCE BY 30 YEARS AFTER MARRIAGE, ACCORDING TO CHARACTERISTICS OF THE PHYSICIANS.*

CHARACTERISTIC	No. (%)	CUMULATIVE INCIDENCE OF DIVORCE (%)	P VALUE
Total	1118 (100)	29	
Ever divorced	256 (23)	—	
Practice specialty			0.001
Internal medicine	386 (35)	24	
Pathology	63 (6)	22	
Pediatrics	109 (10)	22	
Psychiatry	81 (7)	50	
Surgery	395 (35)	33	
Other	84 (8)	31	
Sex			0.02
Male	1034 (92)	28	
Female	84 (8)	37	

SURPRISES FOR MEDICAL STUDENTS

Educational incidents and incidental educations

by Otto Didact, *Improbable Research* staff

A Staple, Potato Chips, a Medical Student

“A New X-Ray Finding: Place of the Potato Chip in a Staple Diet,” R.L. Ruskin, *New England Journal of Medicine*, vol. 270, April 16, 1964, p. 841. The author explains:

The films were reviewed in the presence of a senior medical student. He was questioned about what the metallic density represented. Being a particularly bright lad, he unhesitatingly answered, a staple. Then he astounded the observer by stating that he knew how it arrived in the gastrointestinal tract. He revealed that on several occasions, while preoccupied with other activities and munching on potato chips, he had been forced to expectorate staples. These staples had fastened the top of the bag and in the process of opening had dropped into the bag. He was certain that on several occasions he had undoubtedly ingested staples and that this staple seen on the patient’s film was the sine qua non of the preoccupied potato-chip eater.

A New X-Ray Finding: Place of the Potato Chip in a Staple Diet
ROBERT L. RUSKIN, M.D.*
DETROIT, MICHIGAN

NOT too long ago, during a review of a scout film of the abdomen of a patient hospitalized for a routine hemorrhoidectomy, a metallic staple



FIGURE 1. Staple Present in the Left Lower Quadrant, Indicating Recent Ingestion of Potato Chips.

Detail from the study “A New X-Ray Finding: Place of the Potato Chip in a Staple Diet.”

Nosophobia and Hypochondriasis in Medical Students

“Nosophobia and Hypochondriasis in Medical Students,” R.C.A. Hunter, J.G. Lohrenz, and A.E. Schwartzman, *The Journal of Nervous and Mental Disease*, vol. 139, no. 2, 1964, pp. 147-152. The authors, at McGill University, Canada, explain:

Because of the implications of contemporary usage, it is recommended that the term “hypochondriasis” be replaced by the term “nosophobia” when speaking of the fears and feelings of ill health to which medical students are prone.

NOSOPHOBIA AND HYPOCHONDRIASIS IN MEDICAL STUDENTS

R. C. A. HUNTER, M.D.,¹ J. G. LOHRENZ, M.D. AND
A. E. SCHWARTZMAN, PH.D.

Experienced clinical teachers have long recognized the frequency and extraordinary facility with which medical students develop fears and feelings of illness. It has

asis is a term the meanings of which, although difficult to delimit and define, have come to be characterized by ominous therapeutic and prognostic implications. Current

continued >

SURPRISES FOR MEDICAL STUDENTS [CONTINUED]

When Dental Students Smell Fear

“Smelling Anxiety Chemosignals Impairs Clinical Performance of Dental Students,” Preet Bano Singh, Alix Young, Synnøve Lind, Marie Cathinka Leegaard, Alessandra Capuozzo, and Valentina Parma, *Chemical Senses*, vol. 43, no. 6, July 5, 2018, pp. 411–417. The authors, at the University of Oslo, Norway; International School for Advanced Studies (SISSA), Trieste, Italy; the Karolinska Institutet, Stockholm, Sweden; and Instituto Superior de Psicologia Aplicada (ISPA), Lisbon, Portugal, explain:

[The] effects of anxiety chemosignals on the performance of dental students operating on simulation units, wearing T-shirts imbued with human sweat and masked with eugenol were tested.... When exposed to masked anxiety body odors, the test subjects’ dental performance was significantly worse than when they were exposed to masked rest body odors and masker alone, indicating that their performance was modulated by exposure to the emotional tone of the odor.

Relationships: Medical Students and Their Cadavers

“The Corpse as Actant in Bolivian Anatomy Dissection Cubicles,” Susanna Rance, European Association for the Study of Science and Technology. EASST 2006 Conference “Reviewing humanness: bodies, technologies and spaces,” Lausanne, 23-26 August 2006. The author, at CIDES-UMSA (Postgraduate Centre for Development Sciences) Universidad Mayor de San Andrés, La Paz, Bolivia, reports:

I charted the relations of first-year students with cadavers, a topic that particularly interested them and their teacher, Dr. N....

Participant observation and action-research with first-year classes alerted me to their concern about the “student-corpse relationship”, a concept I explored using Actor-Network Theory (ANT). Paying attention to the fine detail of dissection practices, I talked to trainee doctors about their passion for organs with and without bodies (Braidotti 1994) and their pursuit of the dead (*los muertitos*) as study material with commercial value. Anatomy teachers directly linked the daily ritual of re-cognition of the cadaver (*reconocimiento del cadáver*) to interventions on the living. Decomposing corpses brought from the unrefrigerated hospital mortuary permeated the atmosphere, performing as actants in multiple ways. They were alternately vilified, pickled and tenderised, carried up and down stairs in parts dripping formaldehyde, exposed to strange intimacies, and revered with candles lit for their souls.



Valentina Parma, co-author of the study “Smelling Anxiety Chemosignals Impairs Clinical Performance of Dental Students.” Drawing by Nan Swift, Improbable Research staff.



Susanna Rance, author of the paper “The Corpse as Actant in Bolivian Anatomy Dissection Cubicles.” Drawing by Nan Swift, Improbable Research staff.

European Association for the Study of Science and Technology. EASST 2006 Conference
Reviewing humanness: bodies, technologies and spaces
Lausanne, 23-26 August 2006

Saturday 26 August 10:45 – 12:30
Thread 10, Session 10.12

The corpse as actant in Bolivian anatomy dissection cubicles

Susanna Rance

continued >

SURPRISES FOR MEDICAL STUDENTS [CONTINUED]

Ultrasound Probe Grip: The Afternoon Tea Technique

“Ultrasound Probe Grip: The Afternoon Tea Technique,” Luke McMenamin, Stephen Wolstenhulme, Max Hunt, Stuart Nuttall, and Asoka Weerasinghe, *Journal of the Intensive Care Society*, vol. 18, no. 3, 2017, pp. 258-260. The authors, at the University of Leeds and other institutions, explain:

To encourage medical students and trainees to adopt effective probe ‘etiquette’, to prevent poor probe stability caused by a pencil/pinch-grip (Figure 1), and improve image quality, the ‘afternoon tea technique’ was devised as a teaching method. Classically in Victorian Britain, the fifth finger was held out whilst drinking tea in aristocratic households. Therefore, the notion of ‘afternoon tea’ and the concept of ‘keeping your little finger in contact with the patient’s skin’ was created (Figure 2) in a bid to keep the probe stable whilst carrying out the procedure

Learning by Jerks in Science

“Engagement, Wonder, and Learning by Jerks in Science: Perspectives of Pre-Service Elementary Education Students, Medical Students, and Research Science Doctoral Students,” Nancy Pelaez, Kimberley D. Ryder, B. Subah Packer, and Michael R. Cohen, Paper presented at the Annual Meeting of the Association of Educators of Teachers of Science, Cincinnati, Ohio, January 10, 1997. (Thanks to investigator Jonah Smiley for bringing this to our attention.) The authors report that:

Understanding in science comes in jerks, sometimes in a flash of insight, and is accompanied by feelings of elation. The breadth-rather-than-depth approach currently used in teaching science in schools rarely allows students the opportunity to experience this process.

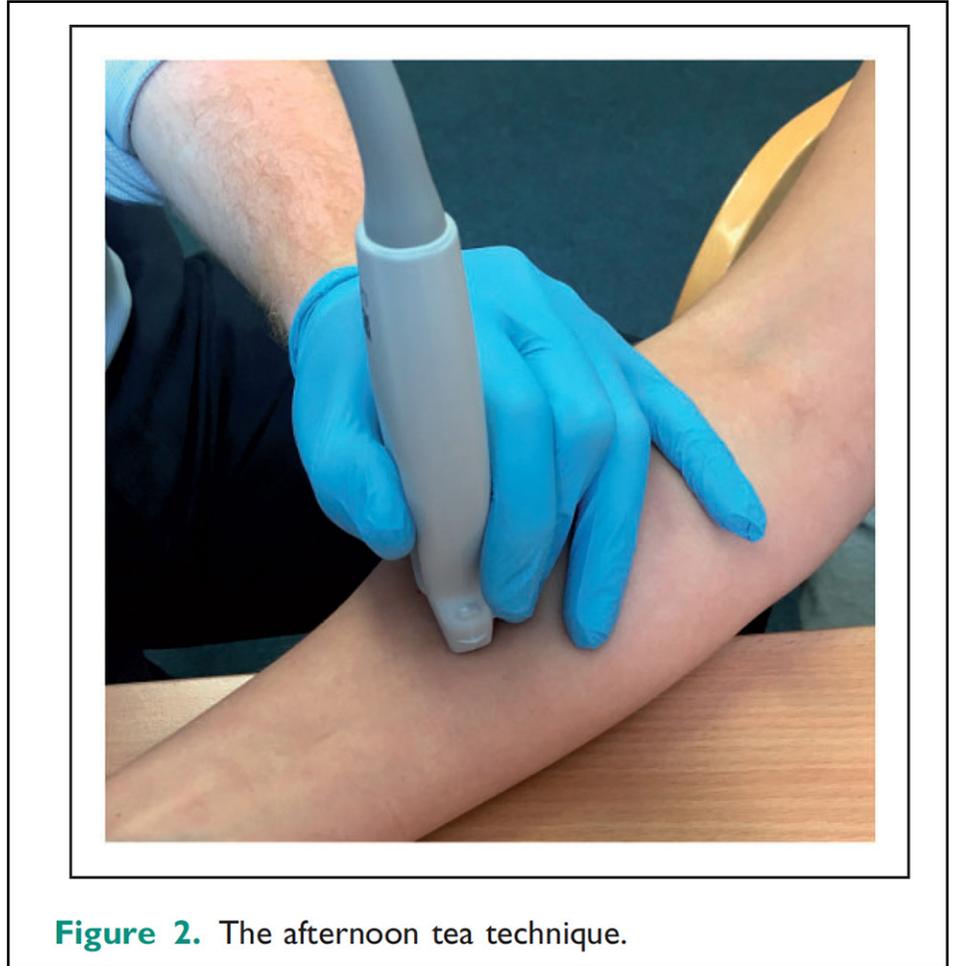


Figure 2. The afternoon tea technique.

Detail from the study “Ultrasound Probe Grip: The Afternoon Tea Technique.”

Engagement, Wonder, and Learning by Jerks in Science

by
Nancy Pelaez
Kimberly D. Ryder
C. Subah Packer
Michael R. Cohen

SURPRISING MEDICAL TECHNIQUES

Clever and/or unusual approaches to problems

by Otto Didact, *Improbable Research staff*

Impact Therapy, With Heavy Objects

“BOOK REVIEW—J.B. Tracey—’Impact Therapy,’” H.E. Robson, *British Journal of Sports Medicine*, vol. 14, no. 4, 1980, p. 224. (Thanks to Scott Langill for bringing this to our attention.) The author, reviewing a medical book, explains:

When an object is struck it is compressed in the line of force acting upon it, but expands in the plane at right angles, and this is used by Dr. Tracey for the treatment of a wide variety of joint and soft tissue disorders. The limb is supported on bags filled with sand or seed, another bag is placed above the limb and repeated blows are transmitted through this bag with a sand bag held in the hand.

Upside-Down Anti-Choking Strategy

“Head-Down Self-Treatment of Choking,” Artur Luczak, *Resuscitation*, vol. 103, 2016, e3. The author, at the University of Lethbridge, Canada, explains:

Surprisingly, even if other people are present during FBAO [Foreign Body Airway Obstruction], in only 5–13% of these cases are the observers or medical personnel able to make a correct diagnosis and initiate the appropriate treatment. These statistics underscore the importance of developing an alternative method of treatment which could be self-applied without relying on the presence or knowledge of other people. Multiple evidence suggest that one of promising approaches to improve FBAO treatment in adults could be by applying the head-down (inversed) position (Fig. 1).

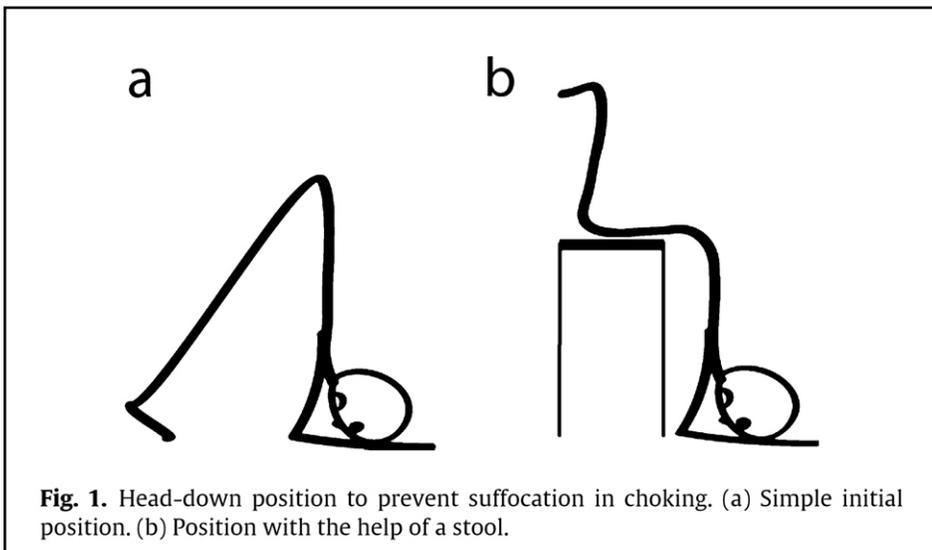


Fig. 1. Head-down position to prevent suffocation in choking. (a) Simple initial position. (b) Position with the help of a stool.

Detail from the study “Head-Down Self-Treatment of Choking.”



*Artur Luczak, author of the study “Head-Down Self-Treatment of Choking.”
Drawing by Nan Swift, Improbable Research staff.*

continued >

SURPRISING MEDICAL TECHNIQUES [CONTINUED]

Driving Whilst Plastered

“Driving Whilst Plastered: Is It Safe, Is It Legal? A Survey of Advice to Patients Given by Orthopaedic Surgeons, Insurance Companies and the Police,” O.A. Von Arx, *et al.*, *Injury*, vol. 35, no. 9, September 2004, pp. 883-887. (Thanks to Leslie Lawrence for bringing this to our attention.) The authors, at Great Western Hospital, Swindon, UK, explain that:

Many patients, immobilised in a plaster cast after a fracture of the upper or lower limb, wish to drive. They frequently ask permission to do so from the treating surgeon. ... [We canvassed] 126 consultant orthopaedic surgeons, 27 insurance companies and the 6 regional police constabularies ... asking how they would advise these patients regarding safety to drive.

Driving whilst plastered: is it safe, is it legal? A survey of advice to patients given by orthopaedic surgeons, insurance companies and the police

O.A. Von Arx, A.J. Langdown, R.A. Brooks, D.A. Woods*

Department of Trauma and Orthopaedic Surgery, Great Western Hospital, Marlborough Road, Swindon, Wiltshire SN3 6BB, UK

Accepted 18 August 2003

KEYWORDS

Driving;
Immobilised;
Guidelines;

Summary Many patients, immobilised in a plaster cast after a fracture of the upper or lower limb, wish to drive. They frequently ask permission to do so from the treating surgeon. Insurance companies are apparently willing to insure these patients to drive if they obtain their doctors permission. The DVLA guidelines are unhelpful in these

Using Dinosaur Poop to Repair Sheep Bones

“Transcortical or Intracondylar? Which Model Is Accurate for Predicting Biomaterial Attachment in Total Joint Replacement?” Roy D. Bloebaum, Nicole T. Abdo, Aaron A. Hofmann, Richard T. Epperson, Raymond E. Olsen, and Ornusa Chalayan, *Journal of Biomedical Materials Research Part B*, vol. 106, no. 2, 2018, pp. 578-588. (Thank to Donald W. Howie for bringing this to our attention.) The authors, at the Bone & Joint Research Laboratory, Salt Lake City, Utah, and the University of Utah, report:

Despite four decades of research on material and porous coatings intended for cementless fixation in total joint replacement (TJR), aseptic mechanical loosening unrelated to particulate disease remains a concern....

Commercially pure titanium has been shown to provide successful attachment clinically in TJR. Coprolite implants, from David Gillette with Utah State University, commonly known as petrified dinosaur poop (Dino) [Figure 1(B)], were used to establish a dramatic understanding that even this unique material (which would never be used in TJR) might demonstrate that bone could hypothetically bridge a 500 mm gap at the transcortical location, but possibly not at the weight-bearing intracondylar location....

In conclusion, the results of this investigation emphasize that biomaterial scientists, manufacturers, investigators, and orthopedic surgeons should be aware of the inferior healing properties of cancellous [the inner, spongily-structured, portion of] bone as compared to cortical [the outer, more-compactly-structured portion of] bone and how these results suggest a false-positive nature of the transcortical model in TJR. The results showed that even petrified dinosaur feces could be mechanically stable in the transcortical model.

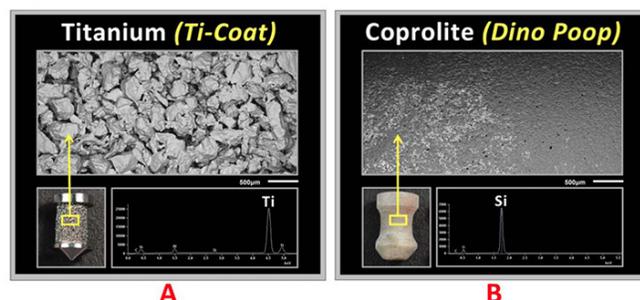


FIGURE 1. This figure illustrates the differences between the surface topography and elemental makeup of the Ti-Coat (A) and Dino (B) plugs. The Ti-Coat is a multilayered porous structure with a roughness of $1309 \pm 283 \mu\text{m}$, with a porosity of $63.3 \pm 3.6\%$, while the Dino plugs have a lightly roughened surface $197 \pm 6 \mu\text{m}$ (due to machining) with no open porosity. The Ti-Coat implants are commercially pure Titanium (Ti) compared to the Dino plugs, which are predominately Silicon (Si).

Detail from the study “Transcortical or Intracondylar? Which Model Is Accurate for Predicting Biomaterial Attachment in Total Joint Replacement?”

[continued >](#)

SURPRISING MEDICAL TECHNIQUES [CONTINUED]

Kneebone on Musical Interference in the Operating Theater

“Music and Communication in the Operating Theatre,” Sharon-Marie Weldon, Terhi Korkiakangas, Jeff Bezemer, and Roger Kneebone, *Journal of Advanced Nursing*, vol. 71, no. 12, 2015, pp. 2763-2774. The authors, at Imperial College London, explain:

Methods — This study was conducted between 2012–2013 in the UK. Video recordings of 20 operations over six months in two operating theatres were captured. The recordings were divided into music and non-music playing cases. Each case was logged using a request/response sequence identified through interactional analysis. Statistical analysis, using a χ^2 , explored the difference between the proportion of request repetitions and whether music was playing or not....

Results — ... repeated requests were five times more likely to occur in cases that played music than those that did not. A repeated request can add 4-68 seconds each to operation time and increased tensions due to frustration at ineffective communication.

Conclusions — Music played in the operating theatre can interfere with team communication, yet is seldom recognized as a potential safety hazard. Decisions around whether music is played and around the choice of music and its volume, are determined largely by surgeons. Frank discussions between clinicians, managers, patients and governing bodies should be encouraged for recommendations and guidance to be developed.



Roger Kneebone, co-author of the study “Music and Communication in the Operating Theatre.” Drawing by Nan Swift, *Improbable Research* staff.

Birth: Of the Big Bang Theory

“Nitroglycerin to Facilitate Fetal Extraction During Cesarean Delivery,” M. David, H. Halle, W. Lichtenegger, P. Sinha, and T. Zimmerman, *Obstetrics and Gynecology*, vol. 91, no. 1, January 1998, pp. 119-124. (Thanks to Richard Leavitt for bringing this to our attention.) The authors are at Humboldt University in Berlin. The study includes a curious Table 2, which is labeled “Number of Surgeons Involved and Duration of Their Careers.”

Table 2. Number of Surgeons Involved and Duration of Their Careers

Duration of career	0.25-mg nitroglycerin group (n = 32)	0.5-mg nitroglycerin group (n = 34)	Placebo group (n = 31)
<2 y (n = 7)	6 (18.8%)	4 (11.8%)	7 (22.6%)
2–6 y (n = 23)	16 (50.0%)	26 (76.5%)	14 (45.2%)
>6 y (n = 9)	10 (31.2%)	4 (11.8%)	10 (32.3%)

Data are presented as n (%).

A curious detail from the study “Nitroglycerin to Facilitate Fetal Extraction During Cesarean Delivery.”

Nitroglycerin to Facilitate Fetal Extraction During Cesarean Delivery

MATTHIAS DAVID, MD, HORST HALLE, MD, WERNER LICHTENEGGER, MD, PRANAV SINHA, MD, AND THOMAS ZIMMERMANN, MD

Objective: To determine the efficacy of nitroglycerin in easing fetal extraction in elective cesarean deliveries in comparison with placebo and to collect maternal and fetal elective cesarean deliveries after the 34th week of gestation. With regard to pharmacokinetics, the measured median fetal-maternal venous nitroglycerin concentration was 1:400

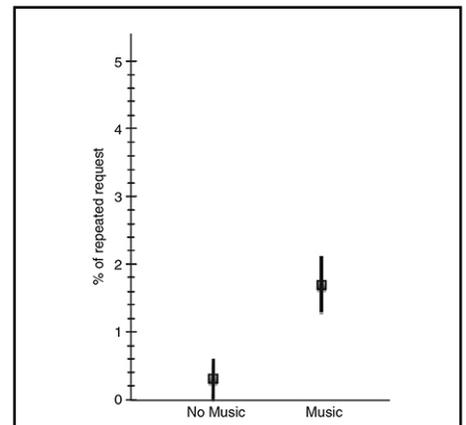


Figure 1 Display of confidence intervals.

significantly more repeated requests (5X) between team members than when there is no music. Neither confidence intervals overlap, suggesting a real difference in the effect of playing music in the operating theatre vs. not playing music (Figure 1). The risk difference (1.4% – CI’s 0.008, 0.2) reveals that this difference is highly significant and unlikely to be due to chance.

Detail from the study “Music and Communication in the Operating Theatre.”

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SURPRISING MEDICAL TECHNIQUES [CONTINUED]

Secrets of Surgeons: The Stuck Slide

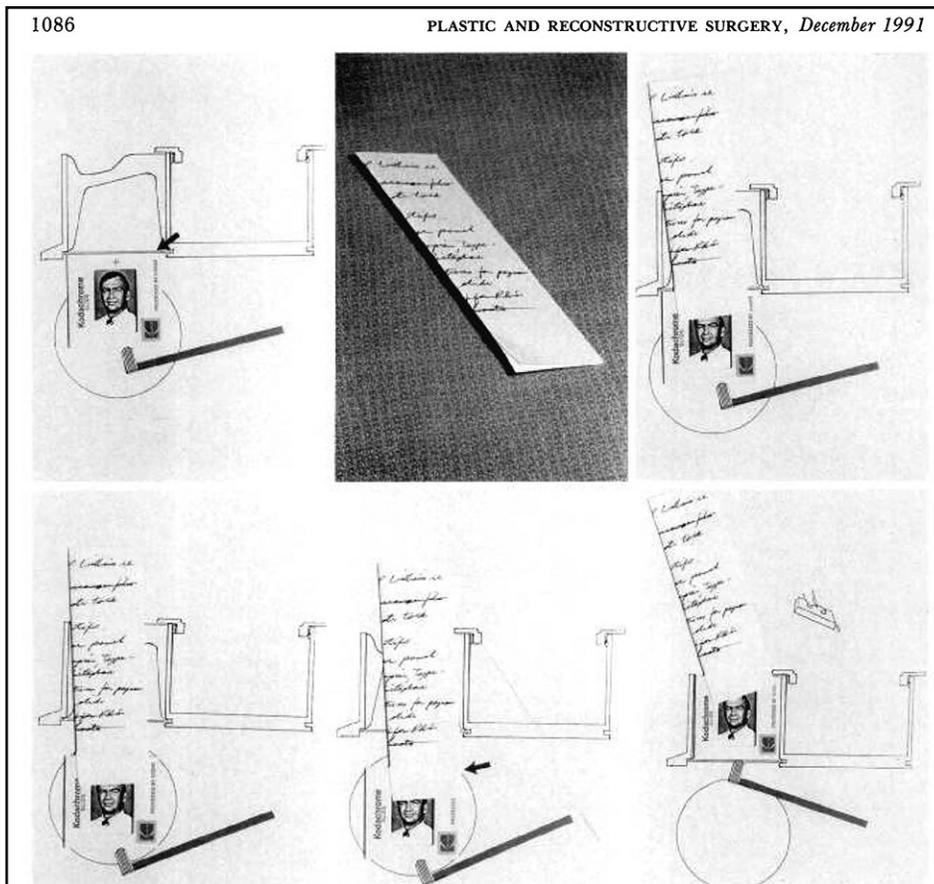
“The Stuck Slide: How To Unstick It,” L.T. Furlow Jr., *Plastic and Reconstructive Surgery*, vol. 88, no. 6, December 1991, pp. 1085-1086. The author reports that:

The distinctive clink of a stuck slide heralds inconvenience for the audience and anything from the opportunity for an ad lib to sheer terror for the presenter. This mechanical catch 22—the carousel will not come off with the slide down, and the slide cannot come up with the carousel in place—is a problem few projectionists seem able to rectify quickly....

A longitudinally folded 3 x 5 card or similar-sized stiff piece of paper can be used to release a slide stuck in a carousel without removing the carousel or its locking ring.



A carousel slide projector, of the general type referenced in the study “The Stuck Slide: How To Unstick It.”



Detail from the study “The Stuck Slide: How To Unstick It.”

THE PAPER CLIP IN MEDICINE

Reports of how little things can make a difference

by Otto Didact, Improbable Research staff

The Paper Clip Nasal Dilator

“The Paper Clip Nasal Dilator,” David Cheng and G. Constanza Iriarte, *The Laryngoscope*, vol. 108, no. 8, 1998, pp. 1247-1248. The authors, at Kaiser Permanente, Bellflower, Downey, California, explain:

A narrow nasal valve causes severe obstruction and is very difficult to fix. Many people have tried surgical approaches, including spreader grafts, with mixed results. Recently there have been appliances used to spread and open up the nasal valve, including Breathe Right (CNS Inc., Bloomington, MN) and Breathe With Eez (Breathe With Eez Corp., Brooklyn, NY). However, these devices are expensive if used on a long-term basis. For example, Breathe Right costs \$10 to \$15 per month and Breathe With Eez costs \$15 to \$20 and gets lost easily. We would like to introduce an inexpensive device devised by a patient of ours for dilating the narrow nasal valve.

open up the nasal valve, including Breathe Right (CNS Inc., Bloomington, MN) and Breathe With Eez (Breathe With Eez Corp., Brooklyn, NY). However these devices are

METHOD
As illustrated in Figure 1, in Step 1 a paper clip is bent to straighten it out. In Step 2 the ends are then bent up so that the clip resembles the letter U. In Step 3 the two arms of the U are bent down at a perpendicular plane to the U. The final result is illustrated in Step 4. The bent paper clip is slipped into the nostril with each rounded

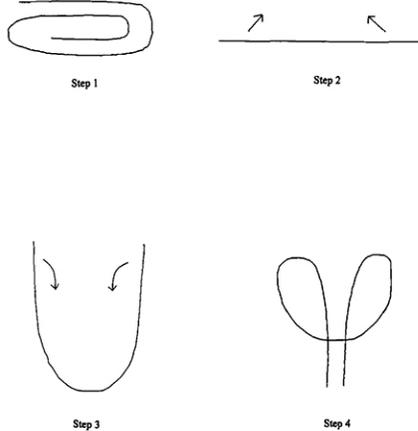


Fig. 1. Bending the paper clip in four steps.

From the Ear, Nose and Throat Department, Kaiser Permanente, Bellflower, Downey, California.
Send Correspondence to David Cheng, MD, ENT Department 9449, Imperial Highway, Building C, Suite 138, Downey, CA 90242, U.S.A.

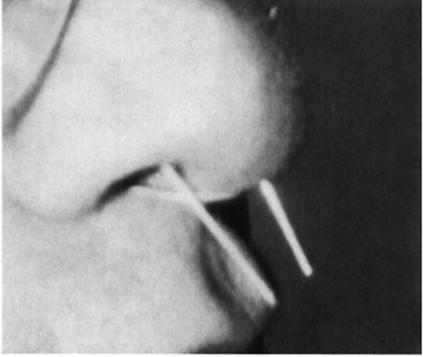


Fig. 2. Oblique view of the paper clip nasal dilator.

Laryngoscope 108: August 1998

Cheng and Iriarte: Paper Clip Nasal Dilator

Detail from the study “The Paper Clip Nasal Dilator.”

Paper Clip for Upper Eyelid Skin Crease Assessment

“Paper-Clip Technique for Upper Eyelid Skin Crease Assessment,” P.M. Rosser and J.R.O. Collin, *Australian and New Zealand Journal of Ophthalmology*, vol. 19, no. 4, 1991, p. 368. The authors, at Moorfields Eye Hospital, London, UK, report:

The placement of the upper lid skin crease is an important consideration in many lid procedures.... An eyelid raised to the correct height following ptosis surgery will by optical illusion appear low if the skin crease is set higher than that on the contralateral side.... The ‘paper-clip technique’ has been used here effectively for over 10 years and without the negative reactions from patients which have been reported elsewhere.

In the Oculoplastic Department at Moorfields Eye Hospital a simple bent paper-clip is used for pre-operative skin crease assessment. The clip is unwound and fashioned into an indenter conforming to the shape of the skin crease (Figure 1), which is vertically highest in the centre and has an anteroposterior curve defined by the position of the globe. Preoperative assessment of the crease in the ptotic eyelid is performed with the eyes in the primary position. The bent paper-clip is pushed into the lid at various sites until the desired eyelid height and skin crease position are obtained. The distance from the paper-clip to the lid margin is then measured in downgaze and recorded for intraoperative use (Figures 2-6).

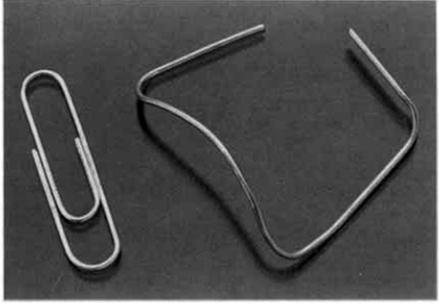


Fig. 1.--Bent paper-clip.

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Australian and New Zealand Journal of Ophthalmology 1991; 19(4)

Detail from the study “Paper-Clip Technique for Upper Eyelid Skin Crease Assessment.”

[continued >](#)

THE PAPER CLIP IN MEDICINE [CONTINUED]

A Paper Clip to Treat Acne (1999)

“Surgical Pearl: Versatile Paper Clip Comedo Extractor for Acne Surgery,” Joseph L. Cvancara and Jeffrey J. Meffert, *Journal of the American Academy of Dermatology*, vol. 40, no. 3, March 1999, pp. 477-478. The authors, in the US Air Force, at Fort Sam Houston, Texas, report:

Since the 1870s when Dr Henry Piffard first devised an acne instrument, comedo extractors have been used in physicians’ offices.... Today, many designs and prices exist, ranging from disposable \$3 to reusable \$40 instruments. We report an effective and simple comedo extractor design utilizing ordinary paper clips.

Alternative to a Paper Clip to Treat Acne (2004)

“Surgical Pearl: The Safety Pin As a Better Alternative to the Versatile Paper Clip Comedo Extractor,” Muhammed Mukhtar and Rajeev Sharma, *International Journal of Dermatology*, vol. 43, no. 12, December 2004, pp. 967-968. The authors, at the Sofia Skin Center, Patna, India, and the Bishen Skin Center, Aligarh, India, explain:

Acne vulgaris is a very common, chronic inflammatory disease of the pilosebaceous apparatus. The comedo extractor is the instrument primarily used for comedo extraction. There are many types of more costly instruments available, but extraction can be achieved with the help of a modified versatile paper clip and disposable syringes. The disposable syringe is a good option for acne surgery, but a safety pin has been found to be more effective than the clip comedo extractor for extracting the comedo. The safety pin can be regarded as a “two-in-one” instrument for piercing the lesion and for extracting the keratinous material from the pilosebaceous canals

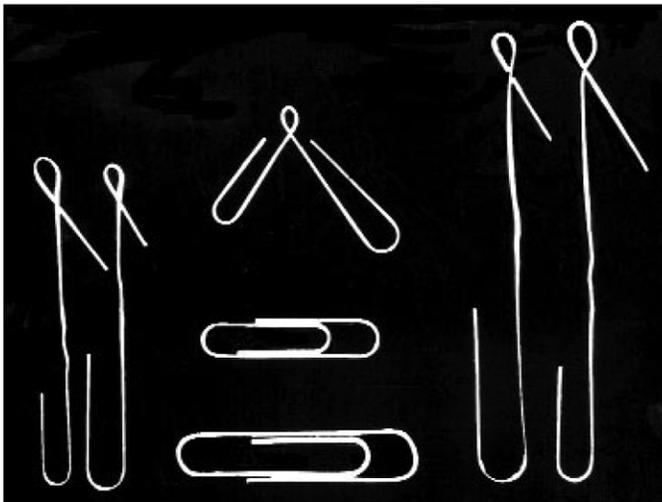


Fig 1. Numerous configurations demonstrating the versatility of the paper clip.



Fig 3. Cyst and paper clip comedo extractor during expression.

Detail from the study “Surgical Pearl: Versatile Paper Clip Comedo Extractor for Acne Surgery.”

MEDICAL NITROGLYCERINE EXPLOSIONS

Nitroglycerine explosions that were not expected

by Alice Shirrell Kaswell, *Improbable Research staff*

Not all nitroglycerine explosions are expected. This is especially true in hospitals and other primarily medical facilities. The four reports featured here outline a ten-year-long period in which the phenomenon was either especially frequent or especially well documented, or perhaps both or neither.

Unexpected Nitroglycerine Explosion? (1983)

“Does Nitroglycerine Explode?,” John C. Babka, *New England Journal of Medicine*, vol. 309, 1983, pp. 3-9. The author, at the Naval Regional Medical Center in Charleston, South Carolina, explains:

There was a Transderm Nitro patch over the left precordium. Shortly after arrival [in the emergency room], she collapsed and was found to be in ventricular fibrillation. Defibrillation with 320 J of energy was administered.

There was a loud “explosion,” a flash, and a puff of yellow smoke, which startled all present. Defibrillation and standard advanced cardiac life-support measures were unsuccessful. Examination of the body revealed no damage to the patient, but there was a blackened area on the surface of the Transderm Nitro patch....

The best explanation for this “explosion” is that there was an electrical arc between the defibrillator paddle and the aluminum covering of the Transderm patch, rather than vaporization of the contents and an actual explosion....

We recommend that during elective cardioversion or defibrillation, delivery systems for transcutaneous drugs be removed or, at the very least, that the paddles not be placed in contact with the patch.

Unexpected Nitroglycerine Explosion (1985)

“Explosion von Nitropflastern bei Defibrillation,” R. Kuhnen, J. Nitsch, and B. Lfideritz, *Deutsche Medizinische Wochenschrift*, vol. 110, 1985, p. 37.

DOES NITROGLYCERIN EXPLODE?

Editor: Systems for sustained, long-term transdermal administration of drugs are becoming increasingly popular. Many of these are for the delivery of nitroglycerine. Examples include Transderm Nitro (CIBA) and Nitro-Derm. These patches are frequently applied over the left chest so that they are in contact with the heart. This can cause an interesting problem.

A 65-year-old woman had been followed for ischemic heart disease and angina after multiple myocardial infarctions. She had a recent myocardial infarction having occurred three weeks before her final admission. She was being treated with Transderm Nitro (five mg/24 hr), furosemide, and prazosin. She presented to the emergency department with severe shortness of breath, “gurgling” respirations, and rales. She had a blood pressure of 100/60 mmHg and a heart rate of 110 bpm. She had a Transderm Nitro patch over the left precordium. Shortly after arrival in the emergency room, she collapsed and was found to be in ventricular fibrillation. Defibrillation with 320 J of energy was administered. There was a loud “explosion,” a flash, and a puff of yellow smoke, which startled all present.

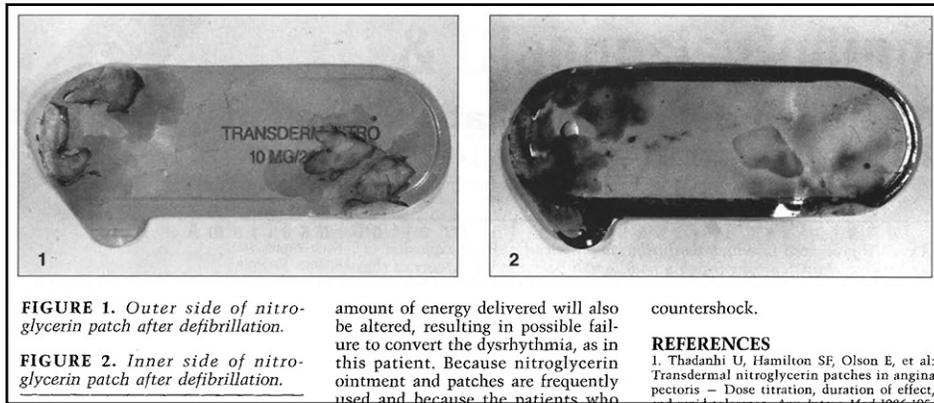
continued >

MEDICAL NITROGLYCERINE EXPLOSIONS [CONTINUED]

Unexpected Nitroglycerine Explosion (1990)

“The Hazards of Defibrillation Through Nitroglycerin Patches,” Keith Wrenn, *Annals of Emergency Medicine*, vol. 19, no. 11, November 1990, pp. 1327-1328. The author, at Emory University School of Medicine, Atlanta, Georgia, reports:

A case is presented in which defibrillation with one paddle placed over a nitroglycerin patch produced an explosion and brief flame. Although no adverse effects occurred in this patient, the dangers of arcing during defibrillation and ineffective delivery of current to the heart are self-evident.



Detail from the study “The Hazards of Defibrillation Through Nitroglycerin Patches.”

Unexpected Nitroglycerine Explosion (1992)

“Report of Nitropatch Explosions Complicating Defibrillation,” Edward A. Panacek, Mark A. Munger, William F. Rutherford, and Stephanie F. Gardner, *American Journal of Emergency Medicine*. vol. 10, no. 2, March 1992, pp. 128–129. The authors, at Case Western Reserve University School of Medicine, explain:

Reports of complications associated with the use of electrical defibrillators have been relatively rare.... Healthcare professionals who may perform defibrillation should be aware of this potential complication.... In this investigation we report two cases...

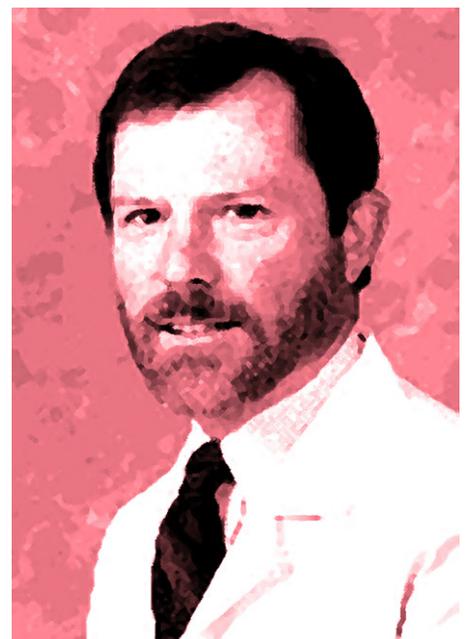
[Case number 1]—On this occasion, there was a moderately loud popping sound which startled everyone in the resuscitation room. In addition, a small amount of smoke emanated from underneath the defibrillation pad which was over the right upper anterior chest. Examination underneath the defibrillation pad revealed the presence of the nitroglycerin patch....

[Case number 2]— On the second defibrillation attempt a “clapping” type sound and a “spark” were noted and the patient converted to sinus tachycardia. Upon removing the defibrillation paddles and pads, a flesh colored nitropatch was noted on the patient’s right upper chest. There was an area of darkened skin discoloration around the patch and a “smoky” smell was noted by the paramedics.

Edward A. Panacek, co-author of the study “Report of Nitropatch Explosions Complicating Defibrillation.” Drawing by Nan Swift, Improbable Research staff.



Stephanie F. Gardner, co-author of the study “Report of Nitropatch Explosions Complicating Defibrillation.” Drawing by Nan Swift, Improbable Research staff.



ICKY CUTESY: WEIGHTING, SELF-CIRCUMCISION

Research reports that are icky and/or cutesy

compiled by Alice Shirrell Kaswell, Improbable Research staff

Cutesy: Weighting Is the Hardest Part

“The Weighting is the Hardest Part: On the Behavior of the Likelihood Ratio Test and the Score Test Under a Data-Driven Weighting Scheme in Sequenced Samples,” Camelia C. Minică, Giulio Genovese, Christina M. Hultman, René Pool, Jacqueline M. Vink, Michael C. Neale, Conor V. Dolan, and Benjamin M. Neale, *Twin Research and Human Genetics*, vol. 20, no. 2, 2017, pp. 108-118. The authors are at various institutions in The Netherlands, the U.S.A, and Sweden.

Icky: Complication Following Self-Circumcision

“Penile Skin Necrosis – Complication Following Self-Circumcision,” Jayesh Sagar, Bethani Sagar, and Dharmendra K Shah, *Annals of the Royal College of Surgeons of England*, 2005, p. 87. (Thanks to Erwin Kompanje for bringing this to our attention.) The authors, at the Royal Free Hospital, London, UK, report:

Self-circumcision may lead to disastrous complications. There have been reports of the complications following use of the constricting devices for improved sexual performance and for auto-erotic intentions, but cases of self-circumcision leading to complications such as necrosis of the penile skin and strangulation of the penis are very rarely reported. This case represents penile skin necrosis in a 55-year-old white English man following an attempt at self-circumcision with a medically unapproved plastic device available in the market. He recovered after surgical debridement and treatment with antibiotics.

The Weighting is the Hardest Part: On the Behavior of the Likelihood Ratio Test and the Score Test Under a Data-Driven Weighting Scheme in Sequenced Samples

Camelia C. Minică,^{1,2} Giulio Genovese,^{3,4,5} Christina M. Hultman,⁶ René Pool,^{1,2} Jacqueline M. Vink,⁷ Michael C. Neale,^{1,8} Conor V. Dolan,^{1,2,*} and Benjamin M. Neale^{3,4,9,*}

¹Department of Biological Psychology, Vrije Universiteit, Amsterdam, The Netherlands

²The EMGO⁺ Institute for Health and Care Research, Amsterdam, The Netherlands

³The Stanley Center for Psychiatric Research, Broad Institute of the Massachusetts Institute of Technology and Harvard, Cambridge, MA

⁴The Program in Medical and Population Genetics, Broad Institute of the Massachusetts Institute of Technology and Harvard, Cambridge, MA

⁵The Department of Genetics, Harvard Medical School, Cambridge, MA

⁶The Department of Medical Epidemiology and Biostatistics, Karolinska Institute, Stockholm

⁷Behavioural Science Institute, Radboud University, Nijmegen, The Netherlands

⁸Virginia Institute for Psychiatric and Behavioral Genetics, Virginia Commonwealth University, Richmond, USA

⁹The Analytical and Translational Genetics Unit, Department of Medicine, Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts, USA



Figure 1. Plastic, disposable self-circumcision device.

Discussion

Circumcision is one of the commonest operations performed throughout the world for ritual, traditional, or medical reasons. Though it is strongly recommended, it has to be done by professionally trained personnel, there are some countries where circumcision is carried out by untrained persons outside a clinical environment.² Often, the inability of the individual

Detail from the study “Penile Skin Necrosis – Complication Following Self-Circumcision.”

MAY WE RECOMMEND: AFTER THE DELUGE, SHOCKED IN BED

An item that merits an extra look

by Stephen Drew, Improbable Research staff

“Ventricular Fibrillation Associated With an Electrically Operated Bed,” Saul Aronow, John M.R. Bruner, Edward F. Siegal, and L.J. Sloss, *New England Journal of Medicine*, vol. 281, 1969, pp. 31-32. (Thanks to Thomas Michel for bringing this to our attention.) The authors, at Massachusetts General Hospital, report:

A 53-year-old man was admitted to an intensive-care unit of the Massachusetts General Hospital....

[On the fifth day, at] 5:40 p.m., having elevated the backrest of his electrically operated bed to the vertical position, he passed a large amount of urine into his urinal. While attempting to return the urinal to his bedside table with his paretic left arm, he lost control of the heavy bottle. Most of the contents spilled over his lap. He then felt “a terrific jolt,” which “went straight up, right through.” He was unable to move or to cry out for help, and fainted in a few seconds....

Upon arrival at the bedside, the resident found him unconscious, with gasping, agonal respirations. When the resident put his hand on the patient’s chest to administer external cardiac compression, he received an electric shock sufficient to preclude further attempts at resuscitation. At this time it was observed that the patient was soaked in urine, which was still spilling from the nearly empty urinal, and that he was sitting in a pool of urine in which the bed controller was partially submerged....

A nurse’s aide, attempting to return the bed to level position, also received a substantial shock from the controller when her arm touched the siderail of the bed.

DISCUSSION. ...Anything that can be taken into the bed of a sick patient should be designed for submersion in salt water without creating a shock hazard. Familiar items to be viewed with suspicion include television sets (and their control units), radios, telephones, dictating equipment, nurses’ call and communication systems, heating pads, lamps and lamp controls, as well as grooming aids such as hair dryers and electric razors.



*Laurence Sloss, co-author of the study.
Drawing by Nan Swift, Improbable
Research Staff.*

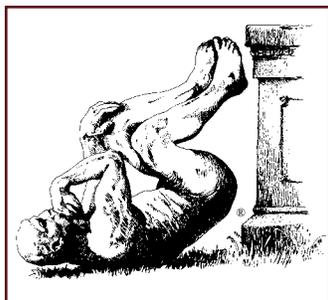
VENTRICULAR FIBRILLATION ASSOCIATED WITH AN ELECTRICALLY OPERATED BED*

**SAUL ARONOW, PH.D., JOHN M. R. BRUNER, M.D.,
EDWARD F. SIEGAL, AND L. J. SLOSS, M.D.**

A PATIENT was thrown into ventricular fibrillation when the controller of his electrically operated bed was submerged in urine. Current from a conventional 120-volt grounded power line passed from the controller, into the urine pool and through the patient’s buttocks and returned to ground via a monitor electrode pasted to the precordial skin.

CASE REPORT

A 53-year-old man was admitted to an intensive-care unit of the Massachusetts General Hospital on May 30, 1968, with an extensive acute anterolateral myocardial infarction. His condition stabilized rapidly and there was no indication



IG® & BEYOND: HOW SURGEONS BEHAVE LIKE MONKEYS AND APES

Some further research adventures of Ig Nobel Prize winners
compiled by Nan Swift, Improbable Research staff

Ten Ig Nobel Prizes have been awarded each year since 1991, honoring achievements that make people LAUGH, then THINK. For a complete list of all the winners, see our web site www.improbable.com/ig/winners.

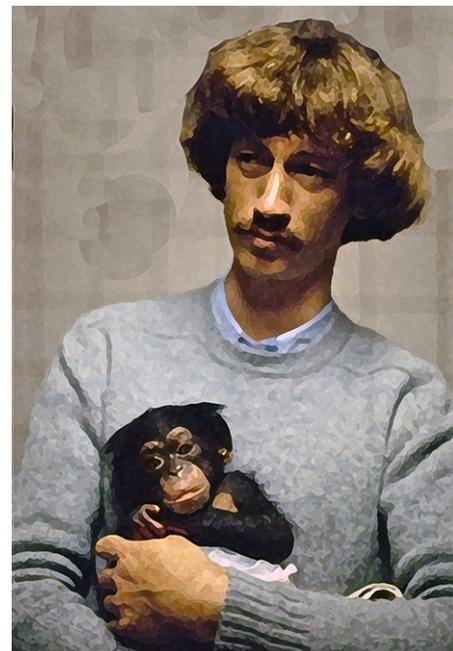
Surgeons, Monkeys, and Apes

“Ethological Observations of Social Behavior in the Operating Room,” Laura K. Jones, Bonnie Mowinski Jennings, Melinda K. Higgins, and Frans B.M. de Waal, *Proceedings of the National Academy of Sciences*, no. 201716883, July 2, 2018. (Thanks to Philipp Weisser for bringing this to our attention.)

The 2012 Ig Nobel Prize for anatomy was awarded to Frans de Waal and Jennifer Pokorny for discovering that chimpanzees can identify other chimpanzees individually from seeing photographs of their rear ends. That research is documented in the study “Faces and Behinds: Chimpanzee Sex Perception,” Frans B.M. de Waal and Jennifer J. Pokorny, *Advanced Science Letters*, vol. 1, pp. 99–103, 2008.

In this later paper, de Waal and other colleagues explain:

Hierarchy and gender composition affect the balance of cooperation and conflict on surgical teams. In this investigation, behavior was quantified with methods traditionally used to study nonhuman primate groups. Observers used an ethogram to timestamp 6,348 spontaneous social interactions from 200 surgical procedures. Conflict and cooperation in the operating room [OR] showed a significant interaction effect with regard to professional roles (e.g., conflict was initiated mostly down the hierarchy between individuals several ranks apart) and by gender interaction (e.g., cooperation was better if the attending surgeon’s gender differed from that of the team majority).... Instead of using post-hoc questionnaires, which are unreliable and often self-serving, we wanted to record actual behavior and relate it to hierarchy and gender. Our findings show that the OR is a microcosm of typical primate social tendencies.



Frans de Waal. Drawing by Nan Swift, Improbable Research staff.

Ethological observations of social behavior in the operating room

Laura K. Jones^{a,b,1}, Bonnie Mowinski Jennings^a, Melinda K. Higgins^a, and Frans B. M. de Waal^{a,d,1}

^aDepartment of Psychology, Emory University, Atlanta, GA 30322; ^bCenter for Research and Evaluation, Kaiser Permanente Georgia, Atlanta, GA 303; ^cNell Hodgson Woodruff School of Nursing, Emory University, Atlanta, GA 30322; and ^dLiving Links, Yerkes National Primate Research Center, Emory University, Atlanta, GA 30322

Contributed by Frans B. M. de Waal, January 5, 2018 (sent for review September 26, 2017; reviewed by H. Russell Bernard and Polly W. Wiessner)

Operating rooms (ORs) are inhabited by hierarchical, mixed-gender clinical teams that are often prone to conflict. In evolutionary terms, one expects more within- than between-gender rivalries, especially since the OR is a place where all sorts of social conflict. People in the OR engage in pleasantries, gossip, insults, professional exchanges, teaching, flirtation, and dance, because music is often played. We need a method that takes all these behaviors into account.

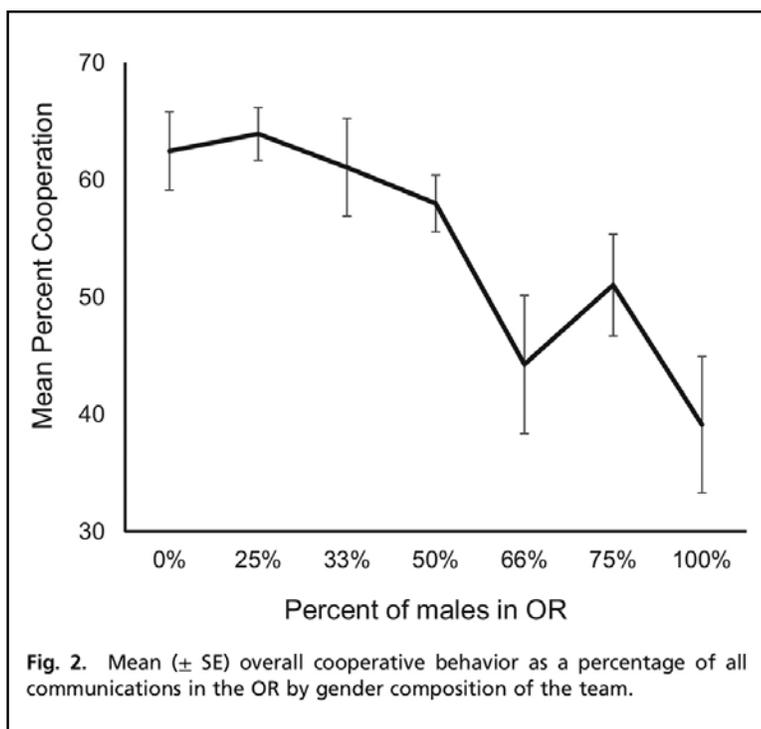


Fig. 2. Mean (± SE) overall cooperative behavior as a percentage of all communications in the OR by gender composition of the team.

Detail from the study.

IG NOBEL LIMERICKS: GRIZZLY ARMOR, COUNTRY MUSIC

Ig Nobel achievements distilled into limerick form

by Martin Eiger, Improbable Research Limerick Laureate

The Ig Nobel Prizes honor achievements that first make people LAUGH, then make them THINK. For details of all the Ig Nobel Prize-winning achievements, see each year's special Ig Nobel issue of the magazine, and also see www.improbable.com/ig/winners.

1998 Ig Nobel Safety Engineering Prize

The prize was awarded to Troy Hurtubise, of North Bay, Ontario, for developing and personally testing a suit of armor that is impervious to grizzly bears.

[Some of that testing can be seen in the documentary film "Project Grizzly," produced by the National Film Board of Canada.]

SHOW SOMEONE YOU LOVE THAT YOU CARE
WITH A GIFT, SOMETHING USEFUL TO WEAR.

BUT WHAT SHOULD YOU CHOOSE?

A NEW PAIR OF SHOES?

NO, A SUIT TO PROTECT FROM A BEAR.

2004 Ig Nobel Prize for Medicine

The prize was awarded to Steven Stack of Wayne State University, Detroit, Michigan, USA, and James Gundlach of Auburn University, Auburn, Alabama, USA, for their published report "The Effect of Country Music on Suicide."

[The study appeared in the journal *Social Forces*, vol. 71, no. 1, September 1992, pp. 211-218.]

The Effect of Country Music on Suicide*

STEVEN STACK, *Wayne State University*
JIM GUNDLACH, *Auburn University*

Abstract

This article assesses the link between country music and metropolitan suicide rates. Country music is hypothesized to nurture a suicidal mood through its concerns with problems common in the suicidal population, such as marital discord, alcohol abuse, and alienation from work. The results of a multiple regression analysis of 49 metropolitan areas show that the greater the airtime devoted to country music, the greater the white suicide rate. The effect is independent of divorce, southernness, poverty, and gun availability. The existence of a country music subculture is thought to reinforce the link between country music and suicide. Our model explains 51% of the variance in urban white suicide rates.

THAT POOR COUNTRY SINGER IS CURSED.

THE LIFE THAT HE LIVES IS THE WORST.

I LISTEN AND THEN

WILL I LISTEN AGAIN?

I WON'T IF I KILL MYSELF FIRST.



Troy Hurtubise, wearing one version of the suit of armor he developed to enable him to spend time in the company of grizzly bears.



Jim Gundlach, co-author of the study "The Effect of Country Music on Suicide," seen here in Oddington, England, when he was part of the 2008 Ig Nobel tour of the UK.



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- ** world's highest IQ
- *** convicted felon
- **** misspelled
- ***** sibling rivalry
- ***** six stars
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- AIR 17:4 – Professor Lipscomb
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- AIR 18:1 – Body Parts
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- AIR 19:1 – Sloths & Vampires
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Ig Nobel Prizes
- AIR 20:1 – Miscreant Trapping
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- AIR 24:1 – Pizza and Popcorn
- AIR 24:2 – Music
- AIR 24:3 – Noise
- AIR 24:4 – Numbers

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Three out of five teachers agree: curiosity is a dangerous thing, especially in students. If you are one of the other two teachers, *AIR* and *mini-AIR* can be powerful tools. Choose your favorite *AIR*-raising article and give copies to your students. The approach is simple. The scientist thinks that he (or she, or whatever), of all people, has discovered something about how the universe behaves. So:

- Is this scientist right—and what does “right” mean, anyway?
- Can you think of even one different explanation that works as well or better?
- Did the test really, really, truly, unquestionably, completely test what the author thought he was testing?
- Is the scientist ruthlessly honest with himself about how well his idea explains everything, or could he be suffering from wishful thinking?
- Some people might say this is foolish. Should you take their word for it?
- Other people might say this is absolutely correct and important. Should you take their word for it?

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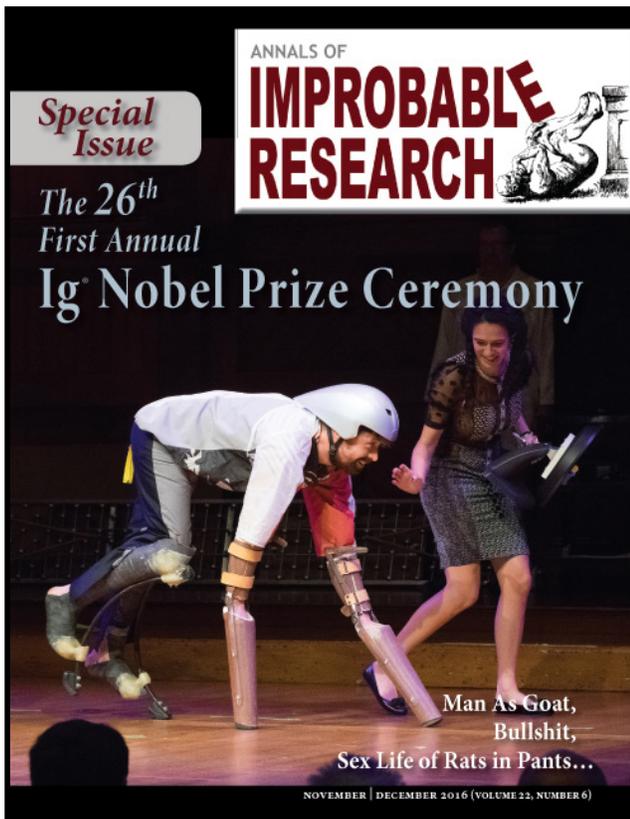
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