Es kann ein Sturz sein oder ein harter Schlag auf den Kopf. Der Aufprall beschädigt den Schädel, Blutgefäße und Nervenfasern im Gehirn reißen. Schwere Schädel-Hirn-Traumata sind eine häufige Todesursache. Die Opfer sind zunächst bewusstlos, im schlimmsten Fall leiden sie über Monate hinweg oder gar...
In the past 20 years, dozens of phase II and III clinical trials for moderate and severe traumatic brain injury (TBI) have failed. Taken together they are the first to show a substantial benefit for TBI in human patients, making PROG among the most promising of the candidates that have been proposed.
Substantial relief of myopathic disability by progesterone therapy

Harald Lass¹, Michael Sator¹, Fritz Zimprich², Irene Lang³, Josef Zeitlhofer² and Johannes Huber¹

Progesterone and neurology.

Gruber DM, Sator MO, Wieser F, Worda C, Huber JC.

Applications of polymorphisms and pharmacogenomics in obstetrics and gynecology
Differential effects of progestins on the brain

Christian J. Gruber*, Johannes C. Huber
What can sex hormones do for the damaged brain?

For over a decade, neurobiologist Donald Stein (Emory University, Departments of Psychology, Emergency Medicine and Neurology, Atlanta, GA, USA) has championed progesterone’s prowess as a neuroprotective steroid. Today, his efforts are paying off and the hormone is being investigated as an agent for treating head trauma. With a team in Atlanta he is about to embark on a pilot clinical study on the use of progesterone to halt the cascade of cell death that follows traumatic injury.

“I’d heard a lot of clinical data that females recovered [from head injuries] better than men and I wanted to test that out in the lab”, Stein explains. Stein set up animal models of frontal cortex injuries and found that female rats made speedier recovery from traumatic brain injury if it could reduce progesterone levels in males. In 2000, he published the results of his study in the Archives of Neurology, and this work caught the eye of researchers at the Barnes-Jewish Hospital at Washington University in St Louis. There, a team led by Charles Hogue (Washington University, St Louis, USA) and Víctor G Dávila-Roman, who with Hogue is leading these studies. In Alzheimer’s disease, oestrogen has a striking pro-
Patients for the treatment group were given progesterone at 1.0 mg/kg via intramuscular injection and then once per 12 hours for 5 consecutive days.

*Corresponding author: Weiqi Yan, wyan@zju.edu.cn

Received: 1 Nov 2007  Revisions requested: 13 Dec 2007  Revisions received: 16 Jan 2008  Published: 30 Apr 2008
ProTECT: A Randomized Clinical Trial of Progesterone for Acute Traumatic Brain Injury

David W. Wright, MD
Arthur L. Kellermann, MD, MPH
Vicki S. Hertzberg, PhD
Pamela L. Clark, RN
Michael Frankel, MD
Felicia C. Goldstein, PhD
Jeffrey P. Salomone, MD
L. Leon Dent, MD, MSCR

From the Departments of Emergency Medicine (Wright, Kellermann, Clark, Ander, Lowery, Patel, Wald, Hoffman, Stein), Neurology (Frankel, Goldstein, Stein), Surgery (Salomone), Neurosurgery (Harris, Gupta), and Anesthesiology (Denson), School of Medicine of Emory University, Atlanta, GA; the Department of Biostatistics, Rollins School of Public Health of Emory University, Atlanta, GA (Hertzberg, Gordon); and the Department of Surgery, Morehouse School of Medicine, Atlanta, GA (Dent).

Randomised Double Blind Placebo Controlled
Brain Injury Score 6-12
N = 100

annemergmed.2006.07.932
ProTECT Study

Progesteron i.v.
3 Tage
6-8 Stunden after Injury

Tag 30: 50 % Mortalitätsreduktion gegenüber Plazebo

annemergmed.2006.07.932
Brain, Heal Thyself

Daniel H. Lowenstein and Jack M. Parent

In 1913, the great Spanish neuroscientist Santiago Ramón y Cajal concluded a treatise entitled *Degeneration and Regeneration of the Nervous System* by declaring, “In adult centres the nerve paths are something fixed, ended, immutable. Everything may die, nothing may be regenerated” (1). This assertion, based on Cajal’s meticulous study of changes in brain anatomy after injury, has been the prevailing dogma for nearly a century. We are still taught that the fully mature brain lacks the intrinsic mechanisms needed to replenish neurons and reestablish neuronal networks after acute injury or in response to the insidious loss of neurons seen in neurodegenerative diseases.

It is time to lay to rest the dogmatic assumption that the central nervous system (CNS) of adult mammals cannot repair itself. Obviously, CNS injuries such as stroke, trauma, or neurodegenerative processes do not fully reverse themselves spontaneously. Recent work suggests, however, that the mammalian CNS has a much greater potential for producing new neurons and repairing damaged regions than previously thought.

First and foremost, the mature CNS is not as hostile an environment for the re-
Progesterone Synthesis and Myelin Formation by Schwann Cells

Herbert L. Koenig,* Michael Schumacher,* Badia Ferzaz, Anh N. Do Thi, Annie Ressouches, Rachida Guennoun, Ingrid Jung-Testas, Paul Robel, Yvette Akwa, † Etienne-Emile Baulieu‡
No shades of gray. These MRI images show loss of white, but not gray, matter in the brain of a 32-year-old rhesus monkey (right). The young adult is 5 years old.
Brain Regions Activated during an Auditory Discrimination Task in Insomniac Postmenopausal Patients before and after Hormone Replacement Therapy: Low-Resolution Brain Electromagnetic Tomography Applied to Event-Related Potentials

Peter Anderer, Bernd Saletu, Gerda Saletu-Zyhlarz, Doris Gruber, Markus Metka, Johannes Huber, Roberto D. Pascual-Marqui
B. Saletu · P. Anderer · G. M. Saletu-Zyhlarz · D. Gruber · M. Metka · J. Huber

Identifying target regions for vigilance improvement under hormone replacement therapy in postmenopausal syndrome patients by means of electroencephalographic tomography (LORETA)
LIF receptor signaling limits immune-mediated demyelination by enhancing oligodendrocyte survival

Helmut Butzkueven¹, Jian-Guo Zhang¹, Merja Soili-Hanninen¹, Hubertus Hochrein¹, Fiona Chioni¹, Kylie A. Shipham¹, Ben Emery¹, Ann M. Turnley¹, Steven Petratos¹, Matthias Ernst², Percy F. Bartlett³ & Trevor J. Kilpatrick¹

¹The Walter and Eliza Hall Institute of Medical Research, University of Melbourne, Victoria, Australia
²Ludwig Institute for Cancer Research, The Royal Melbourne Hospital, Victoria, Australia
Correspondence should be addressed to T.J.K; email: kilpatrick@wehi.edu.au
Review

Combination treatment with progesterone and vitamin D hormone may be more effective than monotherapy for nervous system injury and disease

Milos Cecic, Iqbal Sayeed, Donald G. Stein

Department of Emergency Medicine, Emory University School of Medicine, Atlanta, Georgia, USA
Progesteron 0,4 g  
Colecalciferol 2000 I.E.  
PEG 400 1,6 g  
PEG 6000 1,05 g  

M.u.f. Supp. XXIV
Trends in the prescription of psychotropic drugs and hormone substitutes in Austria

Michael O. Sator, Fritz Wieser, Doris M. Gruber, Elmar A. Joura, Johannes C. Huber

Verordnungsrate Psychopharmaka

pro 1000 Frauen bzw. Männer

Frauen  Männer
Psychopharmaka

**Alterstruktur Männer**
(11 Mio. Verordnungen)

- unter 30 J.: 7%
- 30-39 J.: 11%
- 40-54 J.: 24%
- 55-64 J.: 21%
- 65+ J.: 37%

**Alterstruktur Frauen**
(24 Mio. Verordnungen)

- unter 30 J.: 3%
- 30-39 J.: 8%
- 40-54 J.: 21%
- 55-64 J.: 19%
- 65+ J.: 49%

Quelle: IMS Health, VIP

11% bis zum 40. Lebensjahr
Progesterone Metabolite Allopregnanolone in Women With Premenstrual Syndrome
Pathways underlying premenstrual syndrome?

- Progesterone
  - Allopregnanolone
    - SSRI
    - Alprazolam
  - Pregnenolone
    - GABA-A receptors
      - +ve
      - Anxiolysis

SSRI = selective serotonin reuptake inhibitors
GABA - Rezeptor

Progesteron

Diazepam

Barbiturate

Diazepam

Barbiturate
Effects of hormone replacement therapy on perceptual and cognitive event-related potentials in menopausal insomnia

Peter Anderer a,*, Heribert V. Semlitsch a, Bernd Saletu a, Gerda Saletu-Zyhlarz a, Doris Gruber b, Markus Metka b, Johannes Huber b, Thomas Gräser c, Michael Oettel c
Age-related cognitive decline in the menopause: effects of hormone replacement therapy on cognitive event-related potentials

Peter Anderer\textsuperscript{a,}\textsuperscript{*}, Bernd Saletu\textsuperscript{a}, Doris Gruber\textsuperscript{b}, Leopold Linzmayer\textsuperscript{a}, Heribert V. Semlitsch\textsuperscript{a}, Gerda Saletu-Zyhlarz\textsuperscript{a}, Nadja Brandstätter\textsuperscript{a}, Markus Metka\textsuperscript{b}, Johannes Huber\textsuperscript{b}
Effect of an Oral Contraceptive with Chlormadinone Acetate on Depressive Mood
Analysis of Data from Four Observational Studies

Johannes C. Huber,¹ Marie-Luise S. Heskamp² and Georg A.K. Schramm²
This slide shows the one year prevalence of phobia by age and gender and the data show impressively the difference between males and females in this mood disease.
One-year prevalence of panic by age and gender (ECA)

There is also a significant difference in panic attacks between males and females and the gender specific difference can be observed already in early adolescence and during the transition from puberty to menopause.

Reprint of
Classification and pharmacology of progestins

Adolf E. Schindler a,*, Carlo Campagnoli b, René Druckmann c, Johannes Huber d, Jorge R. Pasqualini e, Karl W. Schwepp e f, Jos H. H. Thijssen g
Review

The dialectic role of progesterone

Johannes C. Huber*, Johannes Ott
PROGESTERONE METABOLITES IN BREAST CANCER

John P Wiebe

Department of Biology, Hormonal Regulatory Mechanisms Laboratory, University of Western Ontario, London, Ontario, Canada N6A 5B7

(Requests for offprints should be addressed to J P Wiebe; Email: jwiebe@uwo.ca)

Abstract

In the 70 years since progesterone (P) was identified in corpus luteum extracts, its metabolism has been examined extensively in many tissues and cell lines from numerous species. In addition to the reproductive tissues and adrenals, every other tissue that has been investigated appears to have one or more P-metabolizing enzyme, each of which is specific for a particular site on the P molecule. In the past, the actions of the P metabolizing enzymes generally have been equated to a means of reducing the P concentration in the tissue microenvironment, and the products have been dismissed...
Paria, B.C., et. Al
Embryo Implantation Requires Estrogen-Directed Uterine Preparation and Catecholestrogen-Mediated Embryonic Activation
Advances in Pharmacology, Vol. 42, pp. 840-842
Mechanisms of Disease

Production and Actions of Estrogens

Christian J. Gruber, M.D., Walter Tschugguel, M.D.,
Christian Schneeberger, Ph.D.,
and Johannes C. Huber, M.D., Ph.D.

tase monooxygenase enzyme complex that is present in the smooth endoplasmic reticulum and functions as a demethylase. In three consecutive hydroxylating reactions, estrone and estradiol are formed from their obligatory precursors androstenedione and testosterone, respectively (Fig. 1). The final hydroxylating step in aromatization does not require enzymatic action and is not product sensitive.

Several plant compounds have structural and functional similarities to estrogens and are therefore referred to as phytoestrogens (Fig. 1). Genistein and daidzein are isoflavonoids found in soybeans and clo-
Pathways for Estrogen Carcinogenesis

E₂ metabolism

Oxidative metabolites
Genomic (transcriptional)
Nongenomic (second messenger)
Mitochondrial (transcriptional)

16α-OH E₁
2-OH E₂, 2-OH E₂, 4-OH E₁, and 4-OH E₂

Covalent binding to proteins and DNA
4-OH E₁ and 4-OH E₂ quinones

Altered gene expression
Increased cell proliferation
Decreased apoptosis

Quinone adducts and oxidative DNA damage
Photo-induced electron emission from 17β-estradiol and progesterone and possible biological consequences

Nikola Getoff\textsuperscript{a,*}, Johannes Hartmann\textsuperscript{a}, Johannes C. Huber\textsuperscript{b}, Ruth Maria Quint\textsuperscript{a}
Metabolite formation of 17alpha-hydroxyprogesterone as a consequence of e-(aq)-emission and progesterone effect regarding cancer.

Getoff N, Danielova I, Hartmann J, Schittl H, Gerschpacher M, Ying S, Quint R, Huber JC.
Mutual interaction of 17beta-estradiol and progesterone: electron emission. Free radical effect studied by experiments in vitro.

Getoff N, Schittl H, Hartmann J, Gerschpacher M, Ying S, Danielova I, Huber JC.
Electron emission and product analysis of estrone: progesterone interactions studied by experiments in vitro

MARION GERSCHPACHER¹, NIKOLA GETOFF², JOHANNES HARTMANN², HEIKE SCHITTL², IREN DANIELOVA¹, SHAOBIN YING², JOHANNES C. HUBER¹, & RUTH M. QUINT²
LETTER

Osteoclast differentiation factor RANKL controls development of progestin-driven mammary cancer

Daniel Schramek1*, Andreas Leibbrandt1*, Verena Sigl1, Lukas Kenner2, John A. Pospsillic1, Heather J. Lee3, Reiko Hanada1, Purna A. Joshi4, Antonios Aliprantis5, Laurie Glimcher5, Manolis Pasparakis6, Rama Khokha4, Christopher J. Ormandy3, Martin Widschwendter7, Georg Schett8 & Josef M. Penninger1

Studies on the role of intestinal bacteria in metabolism of synthetic and natural steroid hormones.

Adlercreutz H, Pulkkinen MO, Hämäläinen EK, Korpela JT
Influence of an estrone-desulfating intestinal flora on the enterohepatic circulation of estrone-sulfate in rats.

van Eldere J, Parmentier G, Robben J, Eyssen H.
PHYSIOLOGY

Obesity and gut flora

Matej Bajzer and Randy J. Seeley

MICROBIAL ECOLOGY

Human gut microbes associated with obesity
An obesity-associated gut microbiome with increased capacity for energy harvest

Peter J. Turnbaugh¹, Ruth E. Ley¹, Michael A. Mahowald¹, Vincent Magrini², Elaine R. Mardis¹,² & Jeffrey I. Gordon¹

The worldwide obesity epidemic is stimulating efforts to identify host and environmental factors that affect energy balance. Comparisons of the distal gut microbiota of genetically obese mice and their lean littermates, as well as those of obese and lean human volunteers have revealed that obesity is associated with changes in the relative abundance of the two dominant bacterial divisions, the Bacteroidetes and the Firmicutes. Here we demonstrate through metagenomic and biochemical analyses that these changes affect the metabolic potential of the mouse gut microbiota. Our results indicate that the obese microbiome has an increased capacity to harvest energy from the diet. Furthermore, this trait is transmissible: colonization of germ-free mice with an ‘obese microbiota’ results in a significantly greater increase in total body fat than colonization with a ‘lean microbiota’. These results identify the gut microbiota as an additional contributing factor to the pathophysiology of obesity.
Gender-specific medicine. 
The new profile of gynecology

D. M. Gruber and J. C. Huber

Department of Gynecology and Obstetrics, Division of Gynecological Endocrinology and Reproductive Medicine, University of Vienna, Vienna, Austria

Key words: Gender-specific Medicine, Endocrine System, Reproduction

ABSTRACT

The science of gynecology is undergoing a change and is promoting the vaginal radical hysterectomy. Two