

eHealth in Theorie und Praxis (183.635, VU, 4.0h, 5 ECTS)

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Social Media und Web 2.0 im Healthcare Bereich

René Baranyi

Inhalt

- 1 Einleitung
- 2 Web 1.0 bis Web x.x
- 3 Medicine 2.0
- 4 Technologien
- 5 Beispiele
- 6 Zusammenfassung

- **The Story so far....**

- **Theoretische Grundlagen**

- **eHealth**

- Theoretische Grundlagen im Gesundheitsbereich

- **Internationale eHealth Acts**

- In welchen Ländern gibt es welche Bestrebungen?

- **eHealth in der Forschung**

- Überblick über wichtige Konferenzen,
allgemeiner Überblick über theoretisches Vorgehen im
Forschungsbereich

- **Praktische Umsetzungen**

- **ELGA** in Österreich
Definition, Akzeptanz und aktueller Stand
- **Integrierte Versorgung**
Vernetzung verschiedener Stakeholder im Gesundheitsbereich
- **Experiences with centrally-initiated large scale national health IT projects**
Erfahrungen aus einigen beispielhaften Großprojekten
- **E-Medikation**
Gastvortrag zum Thema e-Medikation in Österreich

- **Web 2.0 und Social Media**
 - Verknüpfung zu allen bisherigen Themen (inklusive Übung)
 - Ausprägung je nach Einsatzgebiet unterschiedlich
 - Überblick über theoretische Grundlagen aus diesem Bereich
 - Beispiele von Applikationen
 - Exemplarische Technologien

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- 3 **Medicine 2.0**
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- 5 **Beispiele**
- 6 **Zusammenfassung**

Web 1.0 bis Web x.x

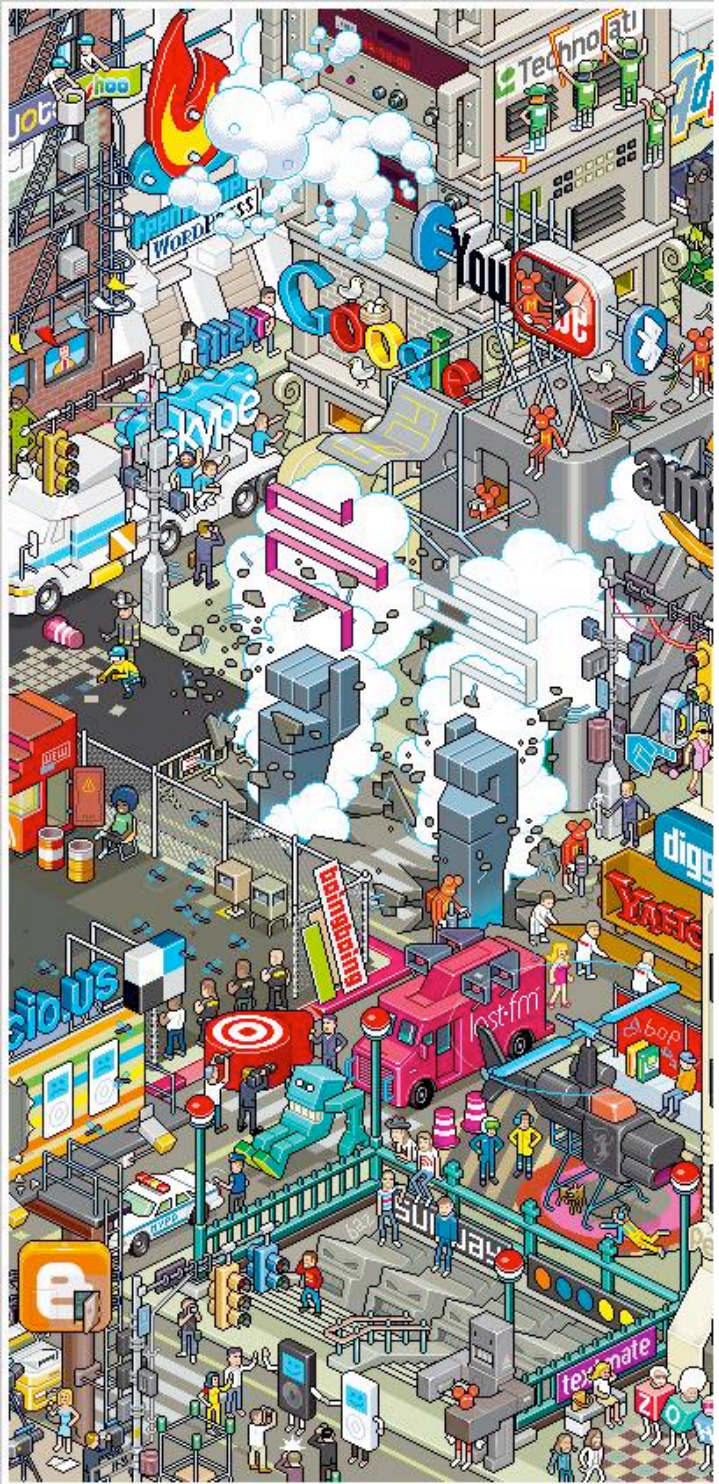
- **Was ist Web 1.0, 2.0, 3.0?**

- **Web 1.0**
 - statische HTML/XHTML Webseiten
 - Keine direkte User Partizipation
 - Circa 250.000 Seiten (1996)
- **Beispiele:**
 - Britannica Online
 - Persönliche Webseiten
 - Content Management Systeme
 - Taxonomie (Verzeichnisse)
 - Feststehend ("stickiness")

- **Web 2.0**
 - Viele verschiedene Entwicklungen
 - Starke User Partizipation
 - Circa 80 Mio Seiten (2006)
- **Definition (O'Reilly/Anderson)**
 - „the web as a platform“
 - Assoziiert mit Web Applikationen und Services
 - Information sharing
 - Rich user experience
 - Dynamic content
 - User centered design

Web 1.0 bis Web x.x

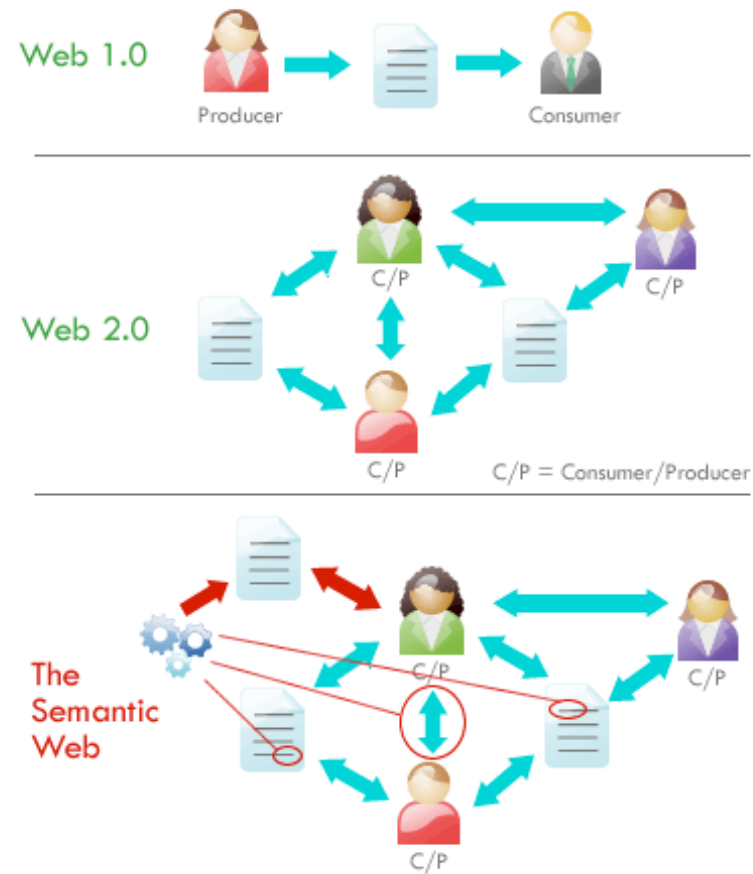
- **Beispiele:**
 - Social Networking sites
 - Blogs
 - Wikis
 - Multimedia sharing sites
 - Mashups
 - Folksonomies
 - ...



- **Web 3.0**
 - Beinhaltet Komponenten aus Web 2.0 und Semantic Web
 - Eher noch theoretisch – noch keine große praktische Umsetzung

Web 1.0 bis Web x.x

- Web 1.0 vs. Web 2.0 vs. Web 3.0



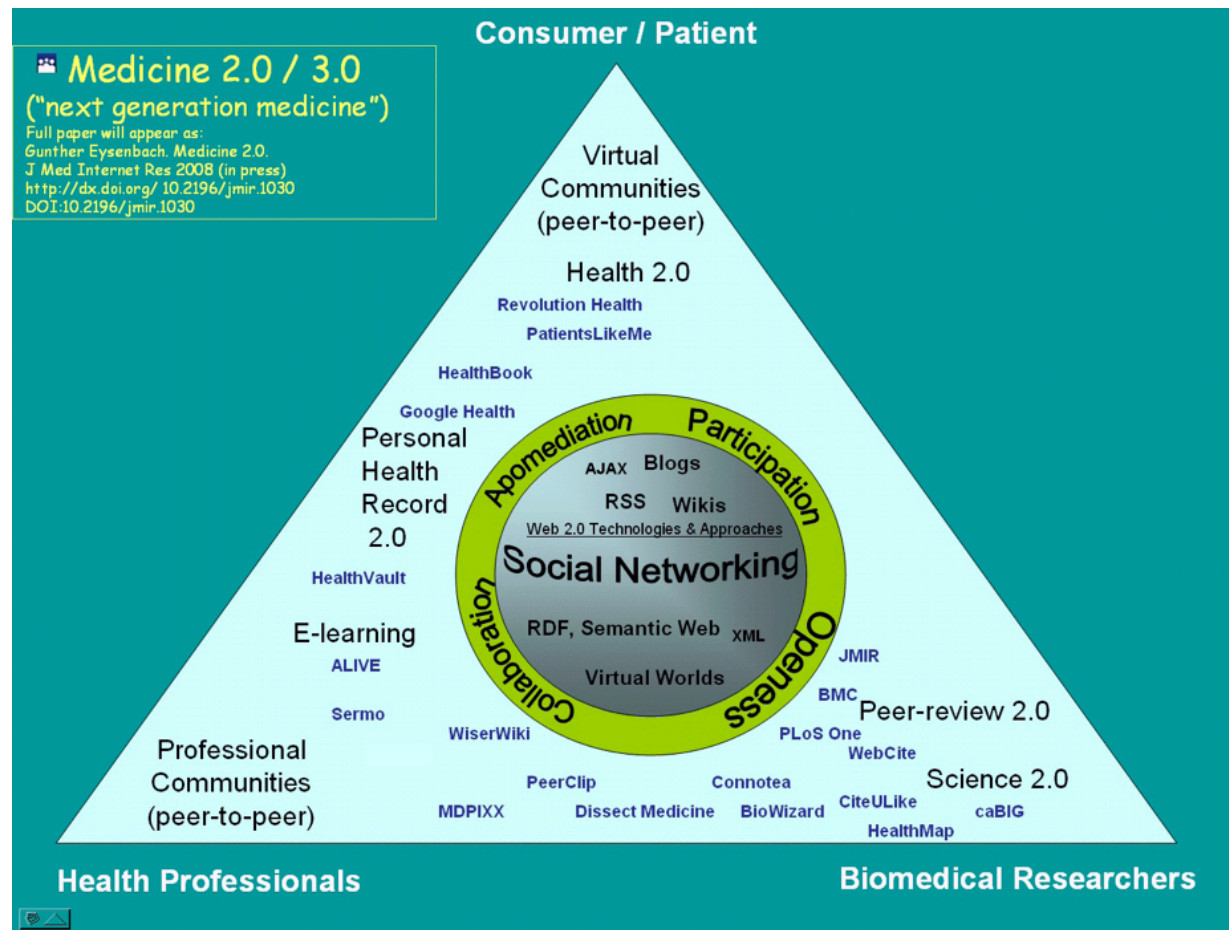
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- **Allgemeines**
 - Viele Patienten nutzen das Internet zur Suche nach Gesundheitsinformationen
 - 2006 suchten 80% der amerikanischen Internetnutzer nach Gesundheitsinformationen (lt. Fox)
 - Trend: Empowering patients (wollen eigene Gesundheit verbessern/überwachen)

- **Definition**
 - Applikationen, Tools und Services für verschiedene Stakeholder die Web 2.0 Technologien, Semantic Web und Virtual Reality Ansätze verwenden
- **5 grobe „Ideen“**
 - Social Networking
 - Participation
 - Apomediation
 - Openness
 - Collaboration

Medicine 2.0

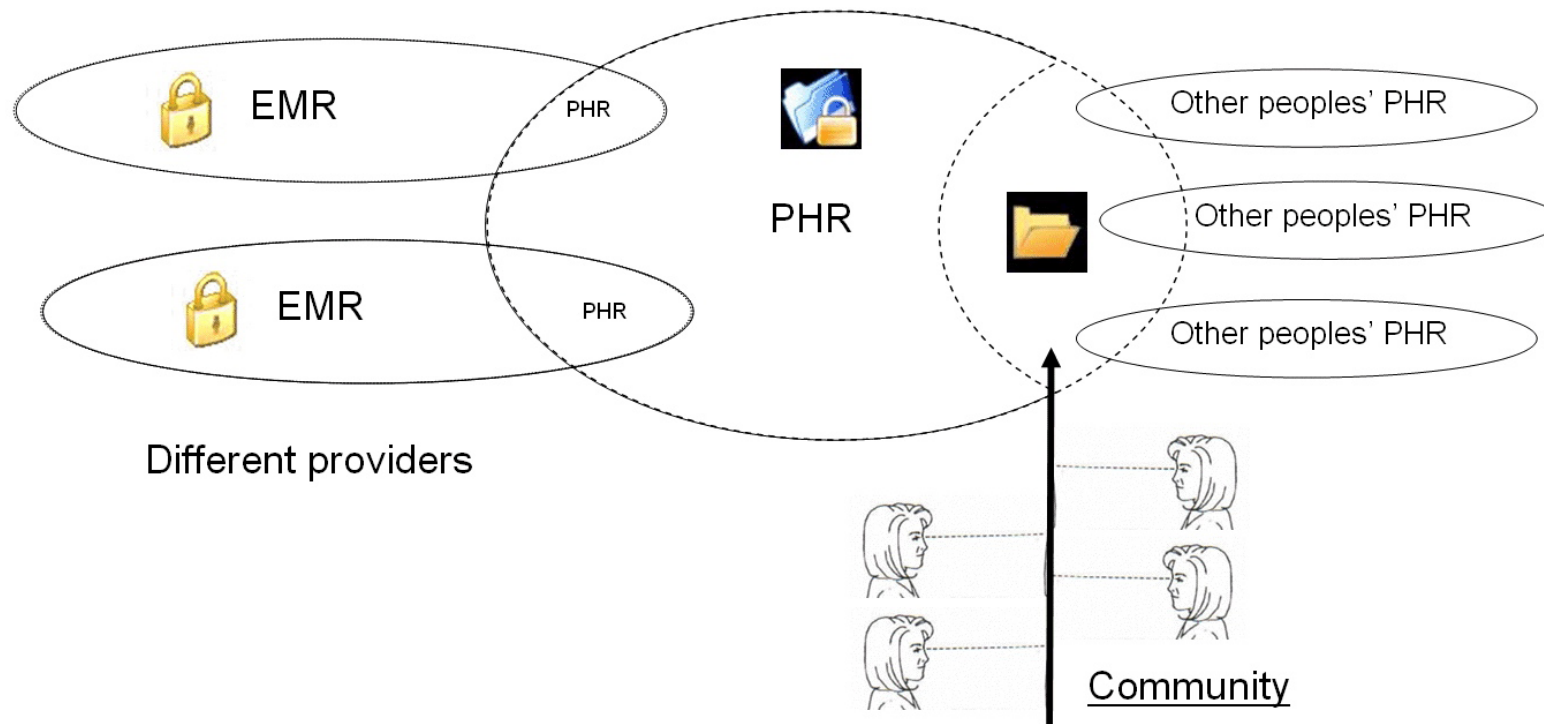


- **Social Networking**

- „...modeling of connections between people, forming a complex network of relations, which in turn enables and facilitates collaboration and collaborative filtering processes“
- Beispiel: Beziehung zu anderen (Freunde, Kollegen, etc.)
- Integration Gesundheitsdaten (z.B. aus PHR) in Sozialem Netzwerk
- Facebook -> Healthbook

- **Participation**
 - Verstärkte Teilnahme des Patienten am Gesundheitsprozess durch z.B. PHRs
 - Patient kann Daten erfassen
 - Patient kann Daten teilen
 - Spezielle für den Patienten zugeschnittene Plattformen
 - Mögliche Security/Privacy Probleme

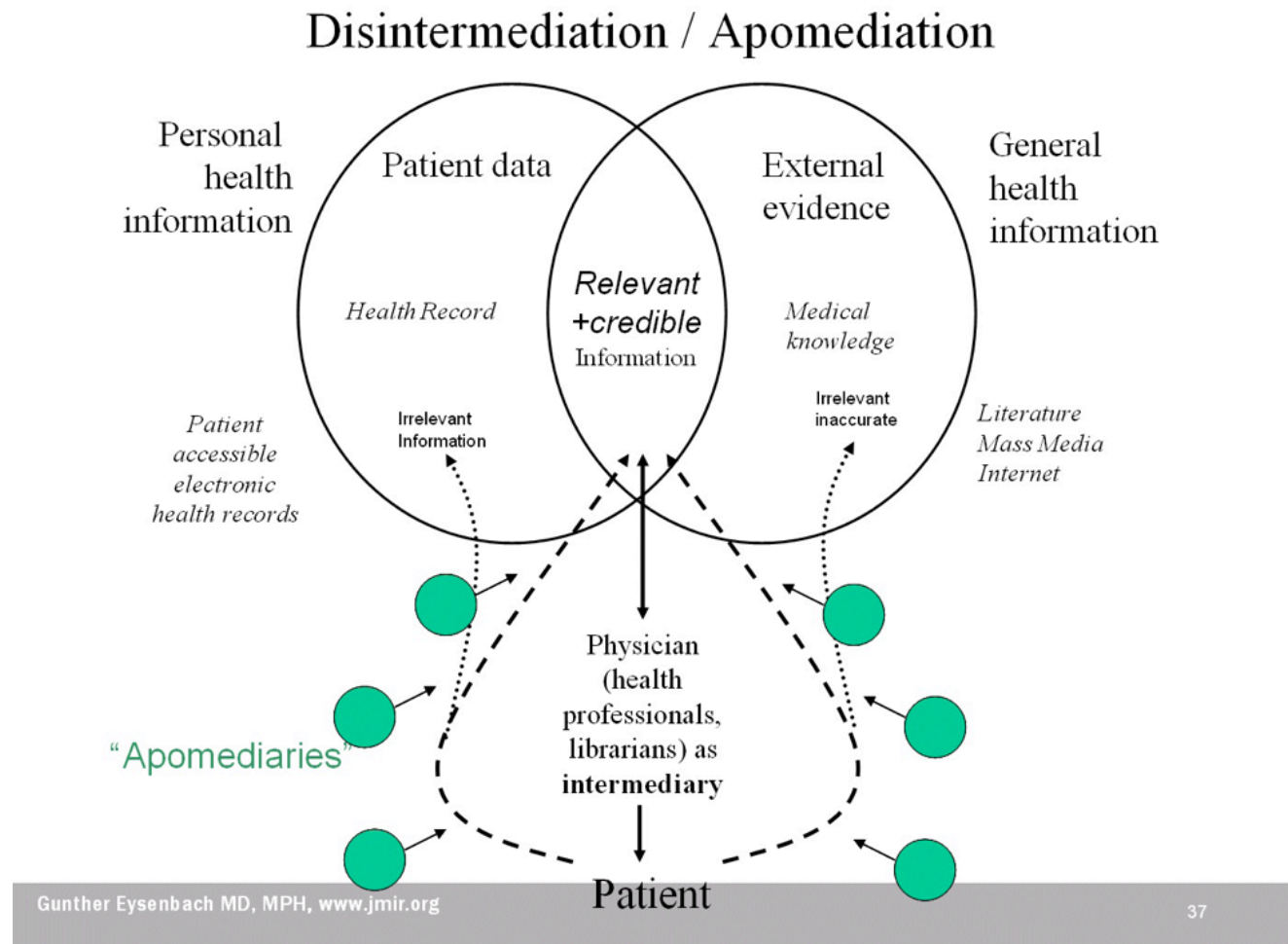
- **Participation**



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- **Apomediation**
 - Sozio-technologischer Term um „Web 2.0“ zu vermeiden
 - Charakterisiert die Identifikation vertrauenswürdiger Informationen und Services
 - Intermediaries (Gatekeeper)
 - Disintermediation (ohne Gatekeeper)
 - Apomediaries (Guidance durch Apomediaries)
 - Mischung möglich

- **Apomediation**

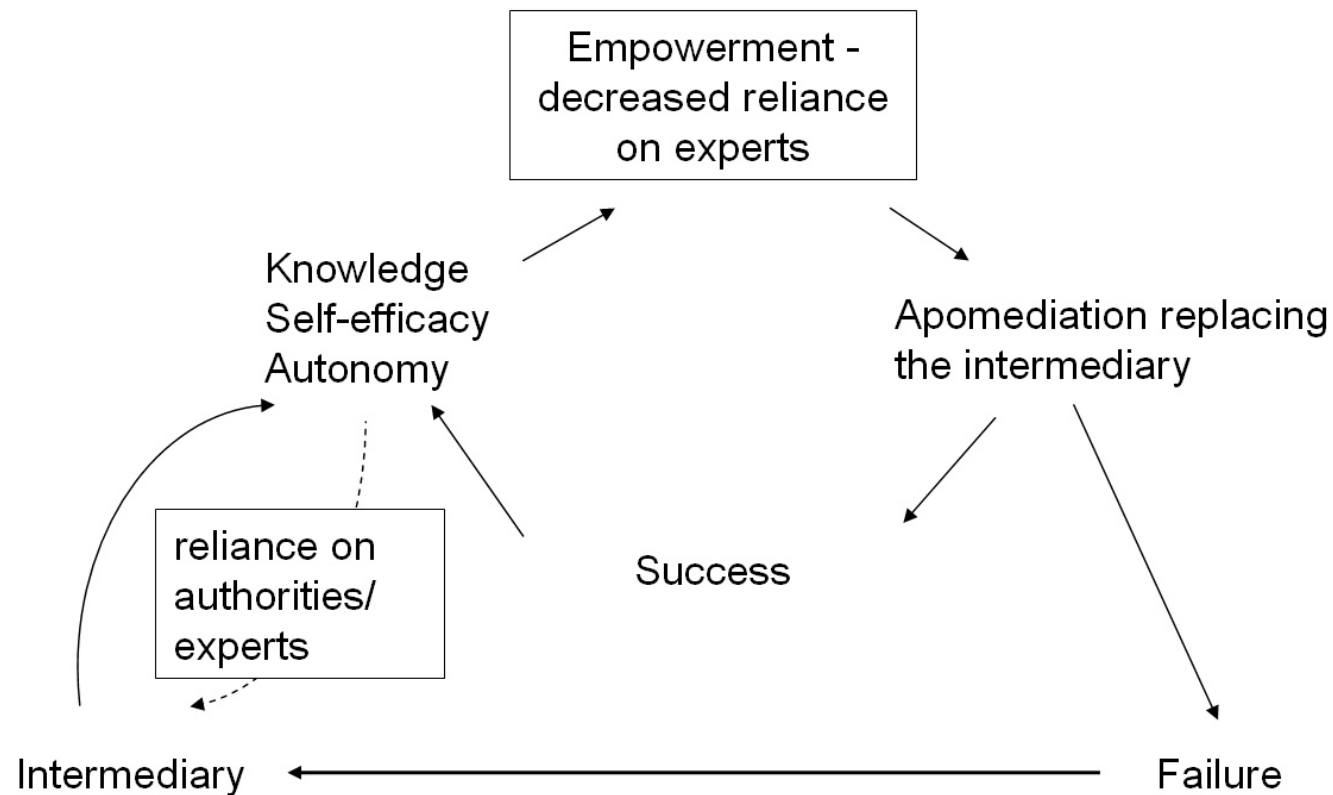


■ Apomediation

| Dimension | Intermediation Environment | Disintermediation/Apomediation Environment |
|-----------------------------------|--|--|
| Overarching Issues | | |
| Environment | Managed | Autonomous |
| Power | Centralized; power held by intermediaries (experts, authorities) | Decentralized; empowerment of information seekers |
| Dependence | Information seekers dependent on intermediaries (physicians, parents); intermediaries are <i>necessary</i> | Information seekers are emancipated from intermediaries as apomediators (peers, technology) provide <i>guidance</i> ; apomediators are <i>optional</i> |
| Nature of Information Consumption | Consumers tend to be passive receivers of information | Consumers are “prosumers” (ie., co-producers of information) |
| Nature of Interaction | Traditional 1:1 interaction between intermediary and information seeker | Complex individual- and group-based interactions in a networked environment |
| Information Filtering | “Upstream” filtering with top-down quality assurance mechanisms | “Downstream filtering” with bottom-up quality assurance mechanisms |
| Learning | More formal; learning through consumption of information | More informal; learning through participation, application, and information production |
| Cognitive Elaboration | Lower cognitive elaboration required by information receivers | Higher elaboration required by information seekers; higher cognitive load unless assistance through intelligent tools |
| User | More suitable for and/or desired by preadolescents, inexperienced or less information literate consumers, or patients with acute illness | More suitable for and/or desired by older adolescents and adults, experienced or information literate consumers, or patients with chronic conditions |
| Credibility Issues | | |
| Expertise | Based on traditional credentials (eg, seniority, professional degrees) | Based on first-hand experience or that of peers |
| Bias | May promote facts over opinion, but opportunity for intermediary to introduce biases | May bestow more credibility to opinions rather than facts |
| Source Credibility | Based on the believability of the source’s authority; source credibility is more important than message credibility | Based on believability of apomediators; message credibility and credibility of apomediators are more important than source credibility |
| Message Credibility | Based on professional and precise language, comprehensiveness, use of citations, etc. | Based on understandable language, knowing or having experienced issues personally |
| Credibility Hubs | Static (experts) | Dynamic (opinion leaders) |
| Credibility Evaluations | Binary | Spectral |

- **Apomediation**
 - Haupt-Aspekte
 - Autonomie
 - Wirksamkeit
 - Wissen
 - Dynamic Intermediation-Disintermediation-Apomediation model (DIDA)

- **Apomediation**

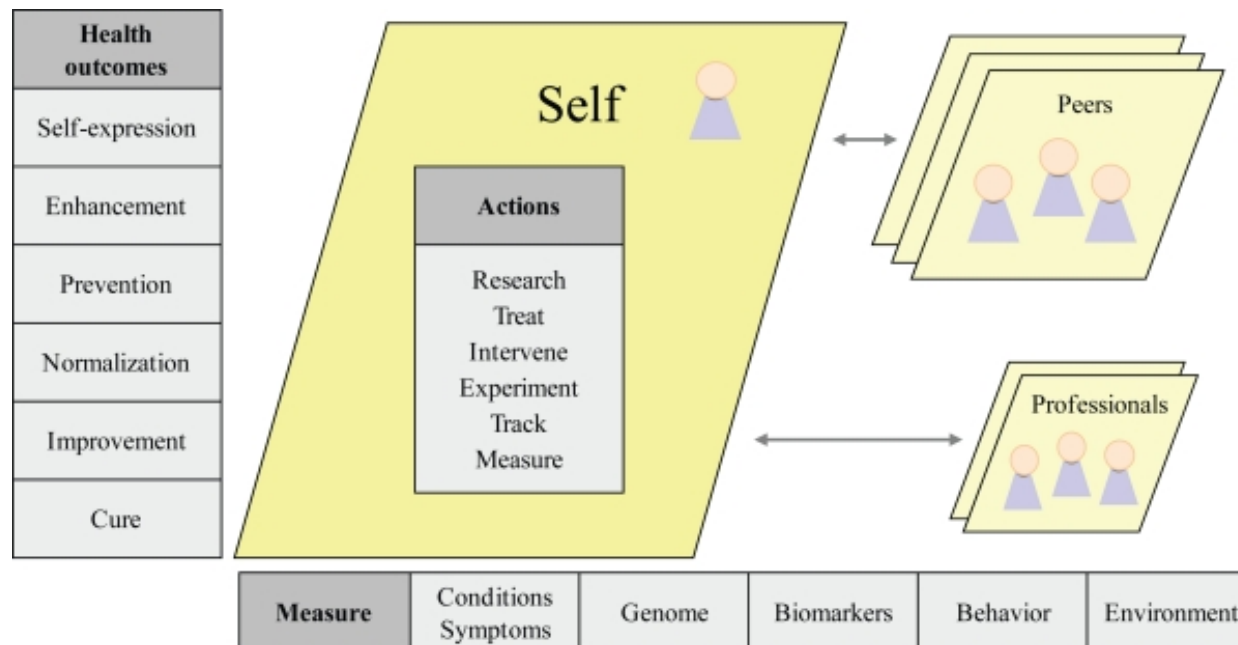


- **Collaboration**
 - Zusammenführen von Personen/Gruppen
 - Verbesserte Möglichkeiten zum Wissenstransfer
 - Verbesserte Nutzungsmöglichkeiten zur Forschung

- **Openness**
 - Technisches Level
 - Transparenz
 - Interoperabilität
 - Open Source
 - Open Interfaces
 - Gesellschaftliches Level
 - Zugang zu Informationen die historisch limitiert waren

Health Care Models

- **Patient Driven Health Care models**
 - Mathematical modeling
 - Software simulation
 - Building real lab samples

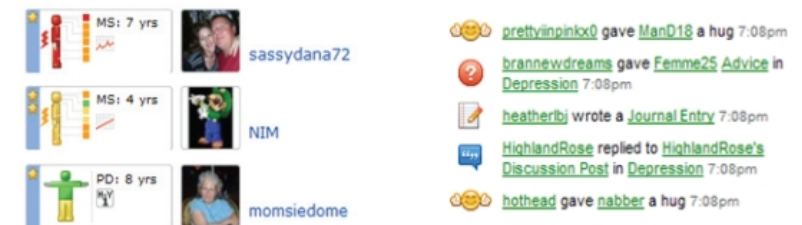


- **Emerging Patient Driven Health Care models**
 - Health Social Networks
 - Consumer personalized medicine
 - Quantified Self-tracking

Health Care Models

- Emerging Patient Driven Health Care models
 - Health Social Networks
 - Services
 - Clinical Trial access
 - Quantified Self-tracking
 - Physician Q&A
 - Emotional Support /Information sharing

| All Conditions > Endometriosis > Symptoms Treatments Causes Related Conditions Resources | | | | |
|---|---------------|------------------------|--------------|---------------------------------|
| What treatments have you tried? | | | | |
| Treatment | Yes (count) % | Chart | No (count) % | avg (count) |
| Birth control pills | Yes (68) 93% | <div><div></div></div> | No (5) 7% | No effect or uncertain 3.4 (18) |
| Laparoscopy (conservative surgery) | Yes (62) 87% | <div><div></div></div> | No (9) 13% | Moderate improvement 3.7 (13) |
| Dietary changes and supplements | Yes (49) 79% | <div><div></div></div> | No (13) 21% | Moderate improvement 4.2 (5) |
| Naproxen | Yes (42) 72% | <div><div></div></div> | No (16) 28% | No effect or uncertain 3.3 (8) |
| diet changes | Yes (40) 69% | <div><div></div></div> | No (18) 31% | Moderate improvement 3.8 (10) |
| Deep breathing relaxation exercises | Yes (37) 65% | <div><div></div></div> | No (20) 35% | No effect or uncertain 3.2 (9) |
| Vicodin | Yes (35) 64% | <div><div></div></div> | No (20) 36% | Moderate improvement 3.7 (10) |



Elaine Brown, MD

Female, 47
Billings - MT

Specialties: Pregnancy, Gynecology

Interests: obstetrics & gynecology, Gynecology, Pregnancy, pregnancy over 35, Teen Pregnancies, infertility, multiple births, twins, triplets, drawing, painting, artist/web designer, graphic art, Internet Marketing

Medical Training

Harvard University – Brigham & Women's Hospital and Massachusetts General Hospital - Internship - 1988 - 1989

OB/GYN – Brigham & Women's Hospital and Massachusetts General Hospital - Residency - 1989 - 1992

Board Certification

American Board of Obstetrics & Gynecology

Forums

- Gynecology
- Pregnancy

Recent Blog Entries

An Attempt to Explain the Menstrual Cycle in Plain Language
Nov 26, 2008 03:30PM - 12 Comments
Period Facts: Menstruation occurs only in humans and other closely related species (like chimps). Other mammals have estrous ...[more]

When You Need to Know If You're Pregnant
Sep 11, 2008 05:24PM - 37 Comments
Manufacturer's of today's home pregnancy tests claim that they are 99% effective when properly used. The only more accurate tests ...[more]

- **Emerging Patient Driven Health Care models**
 - Consumer personalized medicine
 - Personalized Genomics
 - Direct-to-consumer blood and other biomarker tests
 - Environmental Testing
 - Predictive biosimulation

Health Care Models

- **Emerging Patient Driven Health Care models**
 - Quantified Self-tracking
 - „regular collection of any data that can be measured about the self such as biological, physical, behavioral or environmental information“
 - Wearable devices



Tweet what you eat! Your daily food diary. question - what did you eat today? diary setup

home how to news my diary

Recently "Tweaten" click a name below to see a sample diary.

| name | food | eaten | calories |
|---------|--------------------------|-------------------|----------|
| idesce | red pepper | about 3 hours ago | N/A |
| idesce | | about 3 hours ago | N/A |
| idesce | broccoli | about 3 hours ago | N/A |
| idesce | tempeh | about 3 hours ago | 100 |
| idesce | udon | about 3 hours ago | 200 |
| siesen | 4 ginger snaps | about 4 hours ago | N/A |
| siesen | chicken ramen soup | about 4 hours ago | N/A |
| ratsarr | 2 IBC black cherry sodas | about 5 hours ago | N/A |

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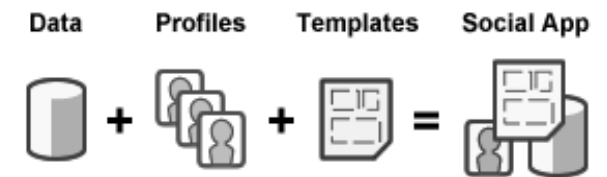


- **Open Social**
 - APIs für soziale Netzwerke
 - wird von Google entwickelt und wurde am 1. November 2007 veröffentlicht
 - Support von verschiedenen Sprachen und offenen Standards
 - Unterstützt von vielen großen Firmen (IBM, SAP...)

- **Open Social**

- Applikationen haben meist 3 teilige Struktur

- Data
 - Profiles
 - Templates



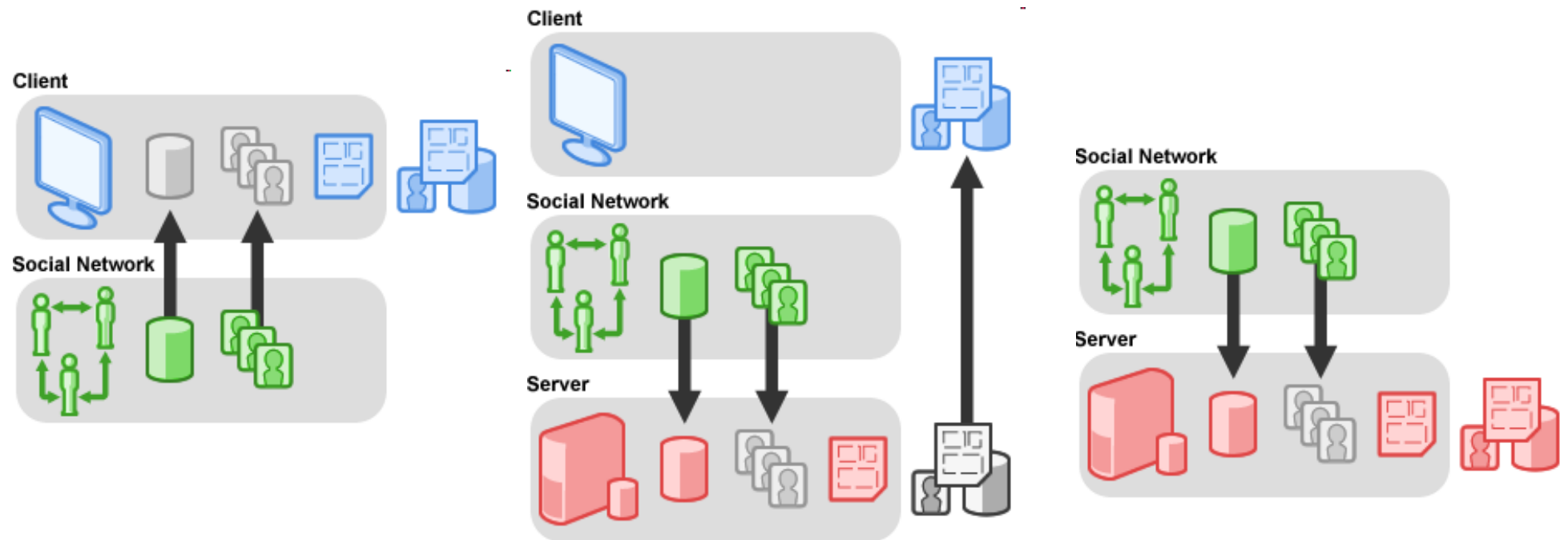
- Komponenten kommen von verschiedenen Systemen

- Client
 - Server
 - Social Network



Technologien

- **Open Social**
 - Design Patterns
 - Social Mashup
 - Social Application
 - Social Website/Social mobile application

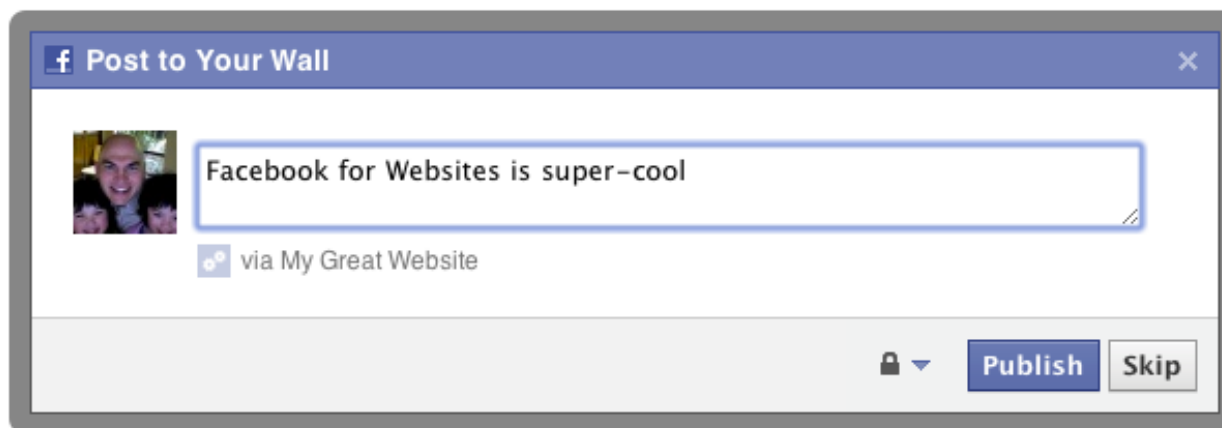


▪ Facebook Konzepte

- Social Design
- Social Plugins
- Open Graph
- Social Channels
- Authentication
- Graph API

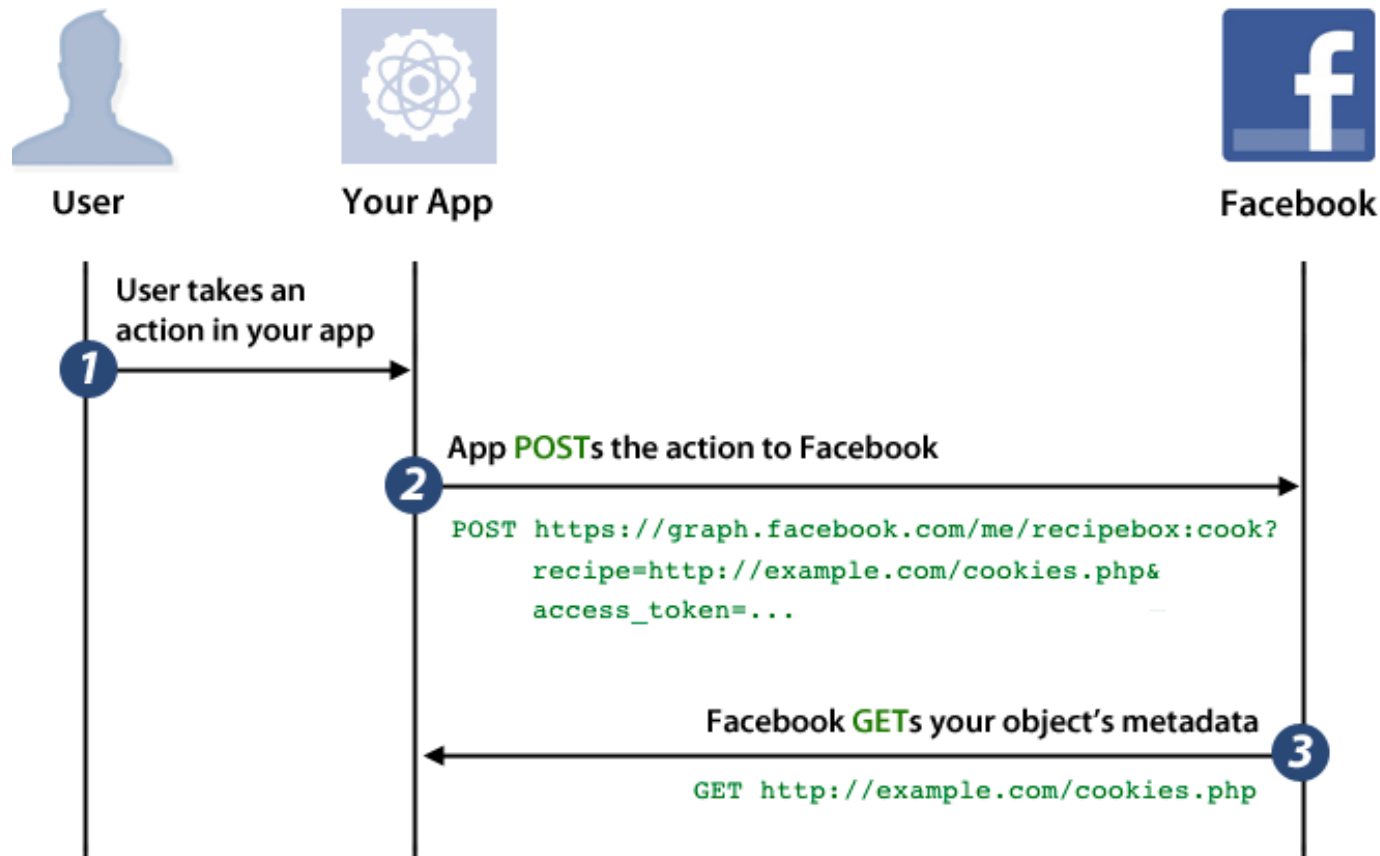


<https://graph.facebook.com/19292868552>



Technologien

- Open Graph



Technologien

■ Open Graph



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- **Health 2.0 Applikationen bieten/sind**
 - Direkten Patientensupport
 - Fördern Krankheitsbewusstsein
 - Ermutigen Patienten zum proaktiven Verhalten
 - Patienten fokussiert (meist auf definierte Ausprägungen/Erkrankungen)
 - Emotionaler Support
 - Liefern kollektives Wissen


Beispiele

- **Welche Anwendungen gibt es?**

Beispiele

Careverge

**sonmychest4**




Age:
22 - 23 years old


Gender:
Male


Location:
VA


About Me


Former athlete turned surgical mess..turning the corner and learning how to get back on a great diet and great exercise plan!


Followers (19)




Following (19)

ACPM 

 Likes - 102


 Star Player Votes - 1





 Goals Completed - 16








[View Connection](#) [Send Message](#)


[Share](#)





 sonmychest4 completed the goal


 **Drink 6 glasses of water**
you need to drink at least 6 glasses of water everyday
 Timed  Individual 





 sonmychest4 completed the goal


 **Scale Mount Kilimanjaro**
you need to walk 60 miles
 Objective  Individual 



 sonmychest4 completed the goal

 **1,000 exercise minutes**
you need to exercise for 1,000 minutes
 Objective  Individual 

 sonmychest4 completed the goal

 **Ab Crunch Month**
you need to do as many sit ups as you can in 30 days
 Timed  Individual 

 sonmychest4 completed the goal





 **Ab Crunch Month** 

Beispiele

■ CureTogether

Depression (7,529 members)

Daily tracking

| Measure | < May 16 | May 17 | May 18 | May 19 | May 20 | May 21 | Today > | 30-Day Trend (click for big chart) |
|--|----------|--------|--------|--------|--------|--------|---------|---|
| x Weight (lbs) | 300 | 303 | 302 | 305 | 303 | 304 | 305 |  |
| x Caloric intake (cal) | 2500 | 3200 | 3000 | 2980 | 2700 | 1500 | 3000 |  |
| x Sleep (hours) | 6 | 8 | 7.20 | 5.50 | 5 | 10 | 7 |  |
| x Exercise (minutes) | 20 | 10 | 15 | 0 | 30 | 60 | 5 |  |

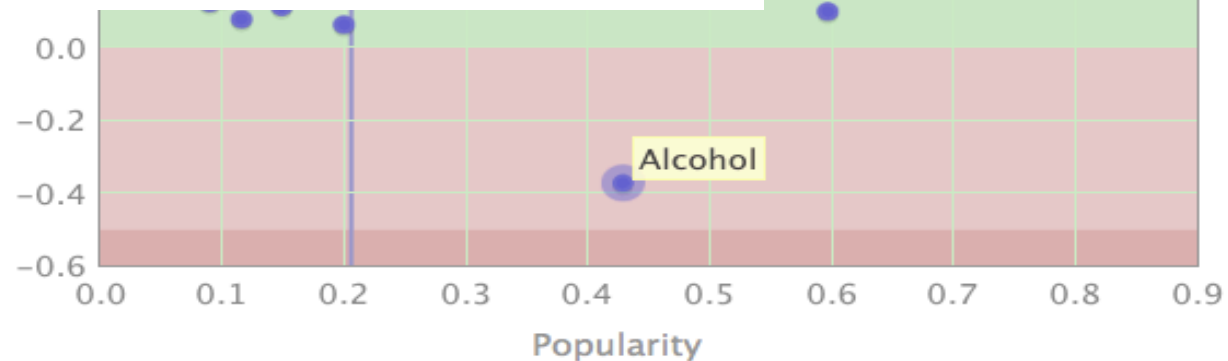
Autosaved May 22, 2012 5:15 am PDT

[Download your data \(CSV\)](#)

Compared
ment it represents.

Daily nat

Cogi








[Dry Eye](#) This infographic is based on a total of 20,210 treatment effectiveness ratings.

[Constipation](#)

☐ Y ☐ N

Beispiele

■ DailyStrength

I'm feeling: Bad
    

“ working on a master plan :) ”

Edit Status

My Profile edit
My Journal write
My Friends
My Messages 38 new
My Hugbook
My Photos
My Account

My Support Groups
Join a Support Group

My Goals
End my relationship

My Groups
Join a Group

Health Event Calendar
See what's new on the site

Step-by-step Tutorials
How to use DailyStrength

We're on Facebook
Check out our page


Follow us on Twitter
Read our tweets


The DS Store is Open
DS t-shirts and more

My Goal

End my relationship

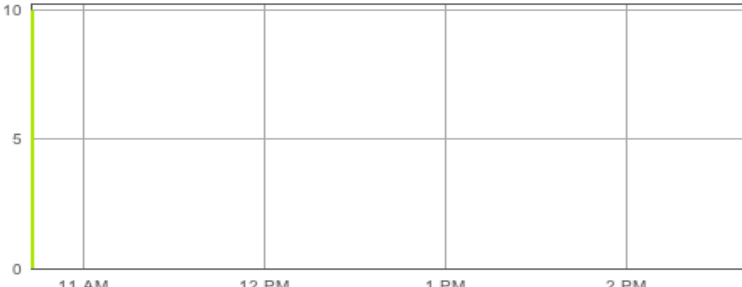
To Complete by: 6/18/12 - in 28 more days!
I plan to achieve this by: Support from family and friends




Progress  10 %

» [Update Goal](#)


GOAL GRAPH



Click to show/hide:
 Progress

GOAL UPDATES

[Write an Update](#)

Do I really wanna end all that? 😞
 10 %
thinking bout all the bad stuff that's happened so far... but maybe I still love him..
0 comments

[View All My Recent Goal Updates](#)


PROMOTE THIS GOAL

Latest Activity



Edit Goal | Back to My Profile

Advertisement



GOAL SUPPORTERS

 You haven't received any encouragements yet.



COMMON GOALS

 **end current relationship**
 0 % Complete
Last updated 10 days ago.

[cottontail](#)

 **End emotional attachment**
 0 % Complete
Last updated 12 days ago.

[Ugginz](#)

 **End my Relationship**
 0 % Complete
Last updated 4 days ago.

[lonelygal27](#)

[View more Common Goals](#)

Welcome to DailyStrength IM!
Powered by Meebo

See if your DailyStrength friends are online and chat with them from anywhere on the DailyStrength site.

[check out Meebo's privacy policy](#)

No Friends Online

Beispiele

Welcome to Disaboom Live!

As the premiere online resource for the disability community, Disaboom gives you the tools and the opportunity to -

- share your stories
- learn from others, and
- create a supportive network of friends


Whether you're a person with a disability, a caregiver, a concerned spouse or a friend, this is the place to connect – so get started now, we're waiting to hear from you!


Participate in the disaboom community

▶ **MEET OTHERS LIKE YOU**

 Introduce Yourself to the Community

▶ **JOIN A DISCUSSION**

 Learn about other topics



Quite often, chronic fatigue, multiple allergies, possible food allergies for at least one month and your symptoms and clearly...

[How to Do an Elimination Diet](#)


disaboom

live forward

CONNECTING THE MILLIONS TOUCHED BY DISABILITY

members | **discussions** | **blogs** | **galleries** | **chat**

[Top Bloggers](#) | [New Blog Posts](#)



Name: Katinka
Location: Montclair NJ
Sex: Female
Status: ItsComplicated
[Send Katinka a private message](#)
[Add Katinka as a friend](#)

[About Me](#) | [My Blog](#) | [My Photos](#) | [My Favorites](#) | [My Groups](#)

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- [August 2011](#) (1)
- [July 2011](#) (4)
- [June 2011](#) (3)
- [May 2011](#) (1)
- [March 2011](#) (1)
- [February 2011](#) (1)
- [January 2011](#) (2)
- [November 2010](#) (2)

"Have fun clucking like a chicken!" And other adventures in hypnotherapy.

Posted: 9/6/2011
Views: 178 Comments: [3](#)
One of the last things that someone said to me as I was...

[View this post](#)

"Three...two...one...Change!"

Posted: 8/22/2011
Views: 198 Comments: [14](#)
I had a phone consultation with a local hypnotherapist...

[View this post](#)

Beispiele

SugarStats

+ Add Entries

[Learn more ways to add entries](#)

Add Sugar Entries

| | |
|-----------|---------|
| Reading | T |
| 490 mg/dL | 03 : 54 |

Comments

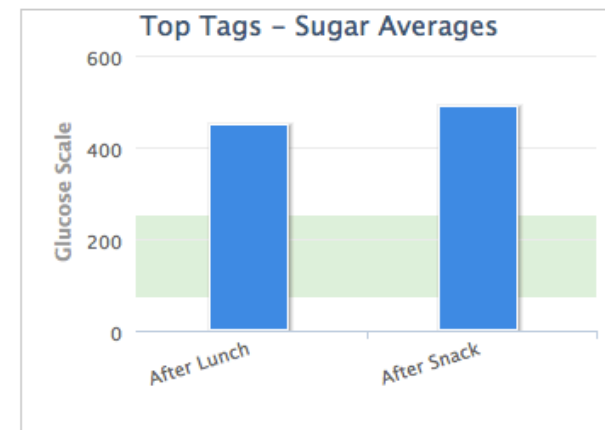
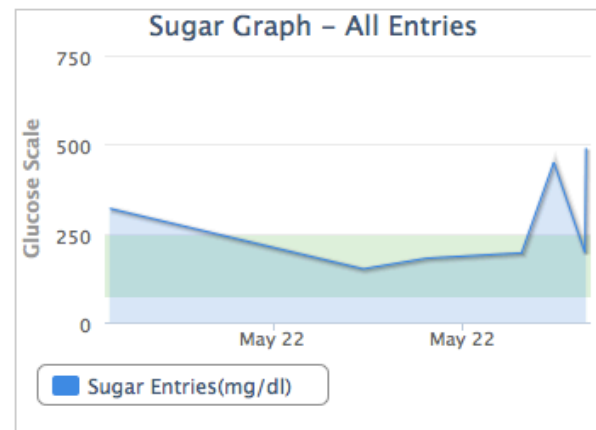
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[Make this your start page](#)

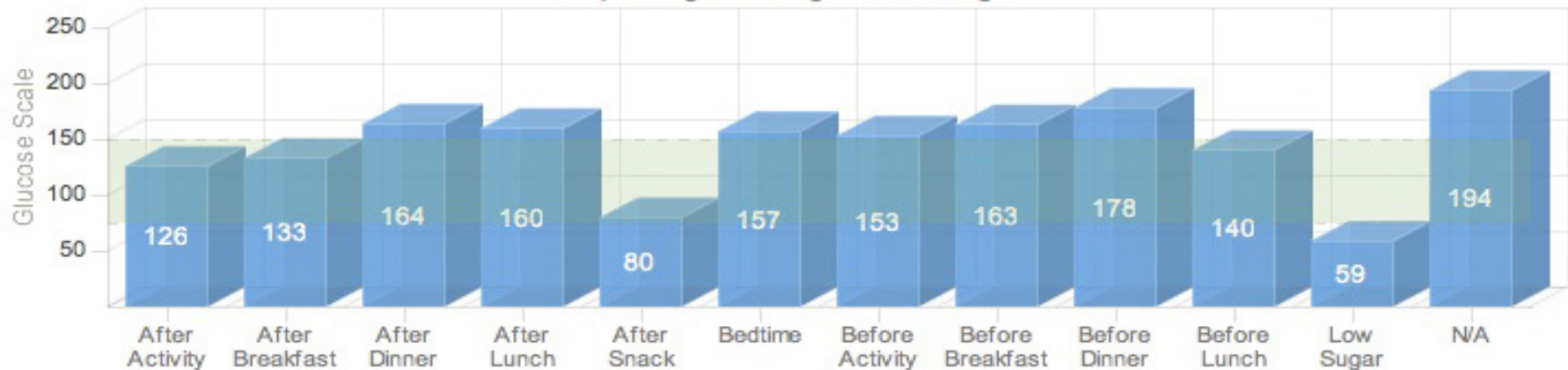
+ Create New: [Stats for Today](#) [Journal Entry](#) [Message](#) [HbA1c Entry](#) [Exam Entry](#) [Doctor Checkup](#)

Recent 5 Day Sugar Graphs



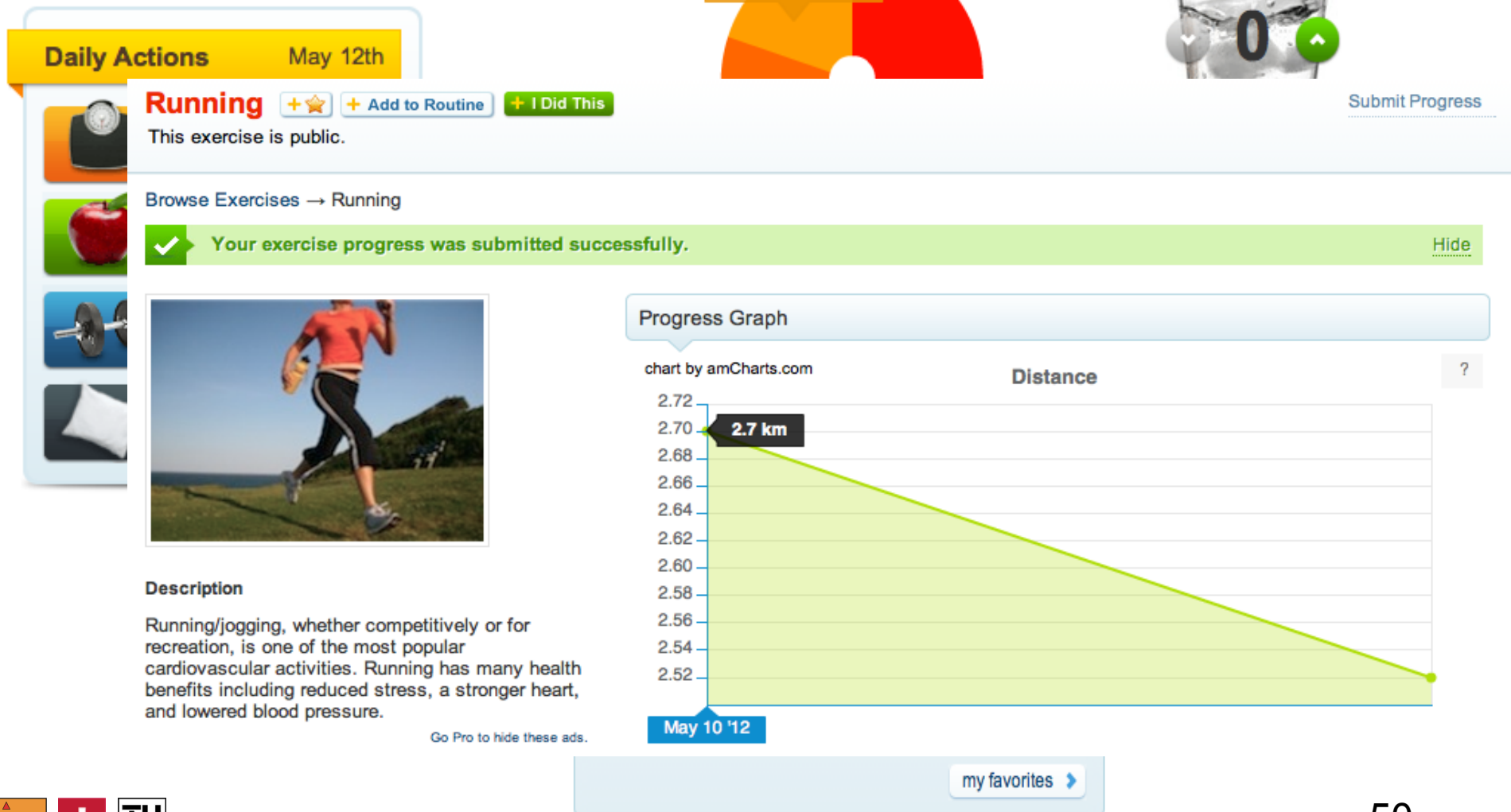
View Discussions: [Most Popular](#) [Newest](#) [Top Voted](#)

Top Tags - Sugar Averages



Beispiele

▪ DailyBurn (Tracker)



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- **Zusammenfassung**

Zusammenfassung

- **Begriffe Web 2.0 vs. Medicine 2.0**

| Web 2.0 | Medicine 2.0 |
|--------------------------------------|-------------------|
| soziale Interaktion | Social Networking |
| User centered Design | Participation |
| dynamischer Inhalt | Apomediation |
| “reichhaltige” Usererfahrung | Openness |
| gemeinsame Nutzung von Informationen | Collaboration |

- **Health Social Networks, Consumer Personalized Medicine, Quantified Self-tracking**

- **Diverse Technologien im Web 2.0/Social Healthcare Bereich**
 - **Open Social**
 - **Facebook Konzepte (Open Graph, Social Plugins, etc.)**
- **Health 2.0 Schlagwörter:**
 - **Fokus auf dem Patienten**
 - **emotionaler Support**
 - **Förderung des Krankheitsbewusstseins**
 - **“empower patients”**

Quellen

- Eysenbach, G., 2008. Medicine 2.0: Social Networking, Collaboration, Participation, Apomediation, and Openness. *Journal of Medical Internet Research*, 10(3), p.e22.
- Dhillon, J.S., Lutteroth, C. & Wünsch, B.C., 2011. Leveraging Web 2.0 and Consumer Devices for Improving Elderlies' Health. *Proceedings of the Australasian Workshop on Health Informatics and Knowledge Management*.
- Swan, M., 2009. Emerging Patient-Driven Health Care Models: An Examination of Health Social Networks, Consumer Personalized Medicine and Quantified Self-Tracking. *International Journal of Environmental Research and Public Health*, 6(2), p.492-525.

