



Technology Interventions for Traumatic Brain Injury

Nov. 13, 2014, 1-2:30 p.m. (EST)

Presenter: David C. Cooper, Psy.D.

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Moderator: MAJ Pamela DiPatrizio, AN, MSN, CEN, CPEN

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Defense and Veterans Brain Injury Center
Silver Spring, Md.

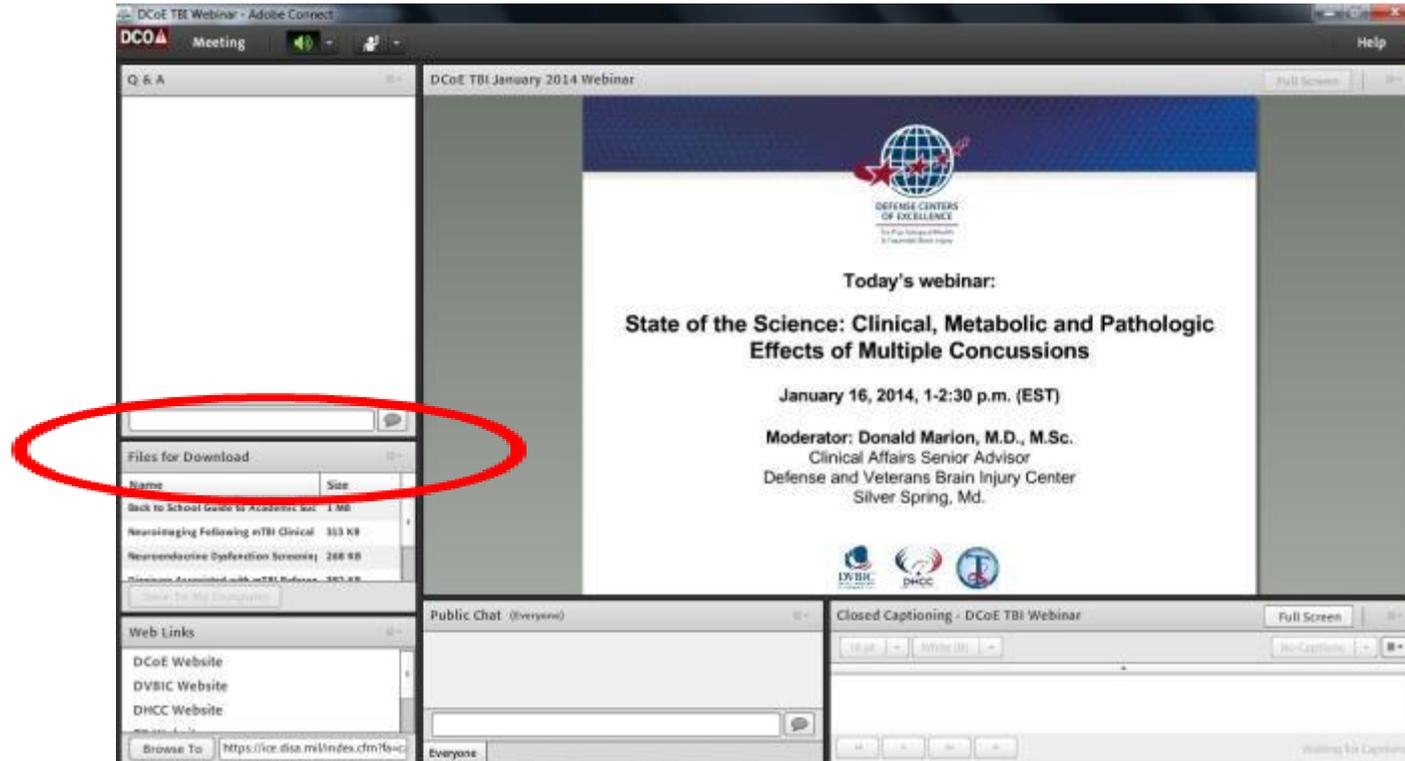


Webinar Details

- Live closed captioning is available through Federal Relay Conference Captioning (see the “Closed Captioning” box)
- Webinar audio is **not** provided through Adobe Connect or Defense Connect Online
 - Dial: CONUS **888-877-0398**; International **210-234-5878**
 - Use participant pass code: **3938468**
- Question-and-answer (Q&A) session
 - Submit questions via the Q&A box

Resources Available for Download

- Today's presentation and resources are available for download in the "Files" box on the screen, or visit dvbic.dcoe.mil/online-education



The screenshot displays a webinar interface with several panels. The main content area shows the webinar title and details. A red circle highlights the 'Files for Download' panel, which contains a table of files. Below the table are 'Web Links' and a 'Public Chat' area. The bottom right panel shows 'Closed Captioning' options.

Files for Download

Name	Size
Back to School Guide for Academics.doc	1 MB
Neuroimaging Following mTBI Clinical	353 KB
Neuroendocrine Dysfunction Screens	266 KB
Diagnosis Associated with mTBI Referral	303 KB

Web Links

- DCoE Website
- DVBIC Website
- DHCC Website

Public Chat (Everyone)

Closed Captioning - DCoE TBI Webinar

Continuing Education Details

- DCoE's awarding of continuing education (CE) credit is limited in scope to health care providers who actively provide psychological health and traumatic brain injury care to active-duty U.S. service members, reservists, National Guardsmen, military veterans and/or their families.
- The authority for training of contractors is at the discretion of the chief contracting official.
 - Currently, only those contractors with scope of work or with commensurate contract language are permitted in this training.
- All who registered **prior** to the deadline on **Thursday, Nov. 13, 2014**, at 3 p.m. (EST) and meet eligibility requirements stated above are eligible to receive CE credit or a certificate of attendance.

Continuing Education Details (continued)

- If you pre-registered for this webinar and want to obtain a CE certificate or a certificate of attendance, you must complete the online CE evaluation and post-test.
- After the webinar, visit <http://continuingeducation.dcri.duke.edu> to complete the online CE evaluation and post-test, and download your CE certificate/certificate of attendance.
- The Duke Medicine website online CE evaluation and post-test will be open through **Thursday, Nov. 20, 2014**, until 11:59 p.m. (EST).

Continuing Education Details (continued)

- Credit Designation – The Duke University School of Medicine designates this live webinar for:
 - 1.5 AMA PRA Category 1 Credit(s)
- Additional Credit Designation includes:
 - 1.5 ANCC nursing contact hours
 - 0.15 IACET continuing education credit
 - 1.5 NBCC contact hours credit commensurate to the length of the program
 - 1.5 contact hours from the American Psychological Association (APA)
 - 1.5 NASW contact hours commensurate to the length of the program for those who attend 100% of the program

Continuing Education Details (continued)

- **ACCME Accredited Provider Statement** – The Duke University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.
- **ANCC Accredited Provider Statement** – Duke University Health System Department of Clinical Education & Professional Development is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's (ANCC's) Commission on Accreditation. 1.50 ANCC nursing contact hours are provided for participation in this educational activity. In order to receive full contact-hour credit for this activity, you must attend the entire activity, participate in individual or group activities such as exercises or pre/post-tests, and complete the evaluation and verification of attendance forms at the conclusion of the activity.
- **IACET Authorized Provider Statement** – Duke University Health System Clinical Education & Professional Development is authorized by the International Association for Continuing Education and Training (IACET) to offer 0.15 continuing education credit to participants who meet all criteria for successful completion of authorized educational activities. Successful completion is defined as (but may not be limited to) 100% attendance, full participation and satisfactory completion of all related activities, and completion and return of evaluation at conclusion of the educational activity. Partial credit is not awarded.

Duke University Health System Clinical Education & Professional Development has been approved as an Authorized Provider by the International Association for Continuing Education & Training (IACET), 1760 Old Meadow Road, Suite 500, McLean, VA 22102. In obtaining this approval, Duke University Health System Clinical Education & Professional Development has demonstrated that it complies with the ANSI/IACET 1-2007 Standard, which is widely recognized as the standard of best practice in continuing education internationally. As a result of Authorized Provider status, Duke University Health System Clinical Education & Professional Development is authorized to offer IACET CEU's for its programs that qualify under the ANSI/IACET 1-2007 Standard.

Continuing Education Details (continued)

- **NBCC:** Southern Regional Area Health Education Center (AHEC) is a National Board for Certified Counselors and Affiliates, Inc.(NBCC)-Approved Continuing Education Provider (ACEP™) and a cosponsor of this event/program. Southern Regional AHEC may award NBCC-approved clock hours for events or programs that meet NBCC requirements. The ACEP maintains responsibility for the content of this event. Contact hours credit commensurate to the length of the program will be awarded to participants who attend 100% of the program.
- **Psychology:** This activity complies with all of the Continuing Education Criteria identified through the American Psychological Association (APA) Continuing Education Requirements.
- **NASW:** National Association of Social Workers (NASW), North Carolina Chapter: Southern Regional AHEC will award contact hours commensurate to the length of the program to participants who attend 100% of the program.



Questions and Chat

- Throughout the webinar, you are welcome to submit technical or content-related questions via the Q&A pod located on the screen. **Please do not submit technical or content-related questions via the chat pod.**
- The Q&A pod is monitored during the webinar; questions will be forwarded to presenters for response during the Q&A session.
- Participants may chat with one another during the webinar using the chat pod.
- The chat function will remain open 10 minutes after the conclusion of the webinar.

Webinar Overview

- The integration of innovative technology tools to support the assessment and treatment of traumatic brain injury (TBI) is an area of increasing interest and importance to providers in the military health care system.
- Technology tools may provide increased compliancy with treatment and engagement with care, increased validity of patient reports and efficiency in the delivery of care by maximizing engagement between sessions to make meaningful lasting changes in the lives of patients.
- At the conclusion of this webinar, participants will be able to:
 - Identify innovative technology tools and their impact on clinical practice with patients who have sustained a TBI.
 - Describe technology tools which can help minimize or eliminate the short- and long-term adverse effects of military-related TBI.
 - Examine research, legal, ethical and other considerations when employing technology in TBI care.

Presenter: David C. Cooper, Psy.D.



David C. Cooper, Psy.D.

- Psychologist in the Mobile Health Program at the National Center for Telehealth and Technology (T2), a component center of the Defense Centers of Excellence for Psychological Health & Traumatic Brain Injury (TBI)
- Program manager for mobile applications related to military and veteran traumatic brain injury and psychological health
- Leads team of software developers, usability researchers and graphic designers to create, develop and deploy mobile and web-based applications
- Previously worked as a clinician in the fields of neuropsychology and neurorehabilitation, and developed and deployed digital strategy solutions for the federal government and national associations
- In his spare time, he is a co-organizer of Quantified Self – Seattle, part of a national movement of individuals looking at the application of personal data collection for increased health benefits



NATIONAL CENTER FOR
TELEHEALTH & TECHNOLOGY
a DCoE Center

Technology Interventions for Traumatic Brain Injury

David Cooper, Psy.D.
Mobile Apps Lead, Mobile Health Program |MHP|

david.c.cooper59.civ@mail.mil

Disclosures

- The views expressed in this presentation are those of the presenter and do not reflect the official policy of the Defense Department (DoD) or the U.S. Government.
- The presenter does not intend to discuss the off-label/ investigative (unapproved) use of commercial products or devices.
- The presenter has no relevant relationships to disclose.
- When mentioning products of private companies, the presenter is:
 - Not recommending them on behalf of the DoD.
 - Instead, using them as illustrative examples of current technology.
- Many will work on personal devices. Few, if any, will work on officially sanctioned DoD devices.

Polling Question

I am familiar with the mission and resources of the National Center for Telehealth & Technology (T2), a component center of the Defense Centers of Excellence for Psychological Health & Traumatic Brain Injury.

Yes

No

Polling Question

I have used T2 products such as Breathe2Relax and PTSD Coach personally or in my clinical practice.

Yes

No

Polling Question

Health care providers and service members (SM) are very similar in the kinds of technology they use and how they use it.

True

False



Image source: juhansonin at <http://www.flickr.com/photos/38869431@N00/8593625632>; Creative Commons License - Attribution 2.0 Generic (CC BY 2.0)

“Health Care Anywhere”

T2 is...

- The National Center for Telehealth & Technology
- A DoD source for:
 - Telehealth policy
 - Research on TBI, suicide prevention and psychological health
 - Mobile applications (apps)
 - Websites
 - Innovation

Technology Use Comparison

SMs

- **89%** own a smartphone (58% Android)
- **65%** weekly gamers
- Majority don't own a tablet

PROVIDERS

- **56%** own a smartphone (67% iPhone)
- **93%** no gaming
- Highest proportion own tablets

How Technology is Used

SMs

- Frequent gamers (higher the younger they are)
 - Highest phone use patterns were texting, making calls, web browse, play games, watch videos and use free apps.
 - The three most frequently used app categories for SMs were social media, games and music.

PROVIDERS

- Social media use comparable
 - Use smartphone to text, call, email
 - The most frequently used app categories for military health providers were social media, email, music and navigation.

Why Use Technology in Military Health Care?

- Overcome barriers to care
(Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004)
 - Logistics
 - Stigma
 - Technology Enhancement Center focus group findings

Web Resources

Home Providers

[sign up](#) | [sign in](#)



afterdeployment.org

Wellness resources for the military community.

Search...

LOCATE

CHAT

CALL

Click [here](#) to locate a provider near you.

Home

Topics

Assessments

Videos

Community

Resources



Contact Us



Post-Traumatic
Stress



Depression



Anger



Alcohol & Drugs



Tobacco



Physical Injury



mild Traumatic
Brain Injury



Stigma



Spirituality



Anxiety



Families &
Friendships



Life Stress



Suicide
Prevention



Sleep



Resilience



Military



Health & Wellness



Families with Kids



Financial Health



Work Adjustment

New & Featured



Kids Deploy Too!
MilitaryKidsConnect.org



Provider Profile
is now
available!

New Expert Blog
Updated Weekly!



Participate
in
Research



Learn more about
Environmental
Exposures



Afterdeployment.org

Home Providers sign up | sign in

 **afterdeployment.org** 
Wellness resources for the military community

Search... 

LOCATE CHAT CALL
Click [here](#) to locate a provider near you.

Home Topics Assessments Videos Community Resources    Contact Us

mild Traumatic Brain Injury



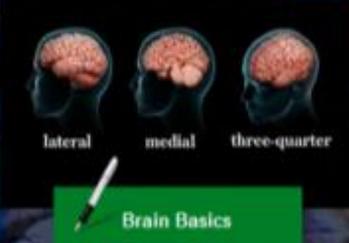
Start Here!

VIDEO STORIES

1. What is TBI?
2. Measuring Severity of TBI
3. Symptoms of TBI
4. Treating TBI
5. Recovery from Concussion



afterdeployment.org



lateral medial three-quarter

Brain Basics



mTBI Assessments



mTBI Library



mTBI Resources



Personal Stories

MilitaryKidsConnect.org

Posttraumatic Stress Disorder (PTSD)

Posttraumatic stress disorder (PTSD) is a serious medical condition that impacts the entire family. Learn how to talk with kids and how help them cope with a parent who has PTSD.



Mild Traumatic Brain Injury (mTBI)

Invisible injuries, like concussions or traumatic brain injury (TBI), impact the whole family. Hear expert advice and real children's stories about coping with a parent's mild traumatic brain injury (mTBI).



Physical Injury

Seeing a parent with a physical injury from combat can be tough. Learn how to help children cope with this tough situation.



Grief & Loss

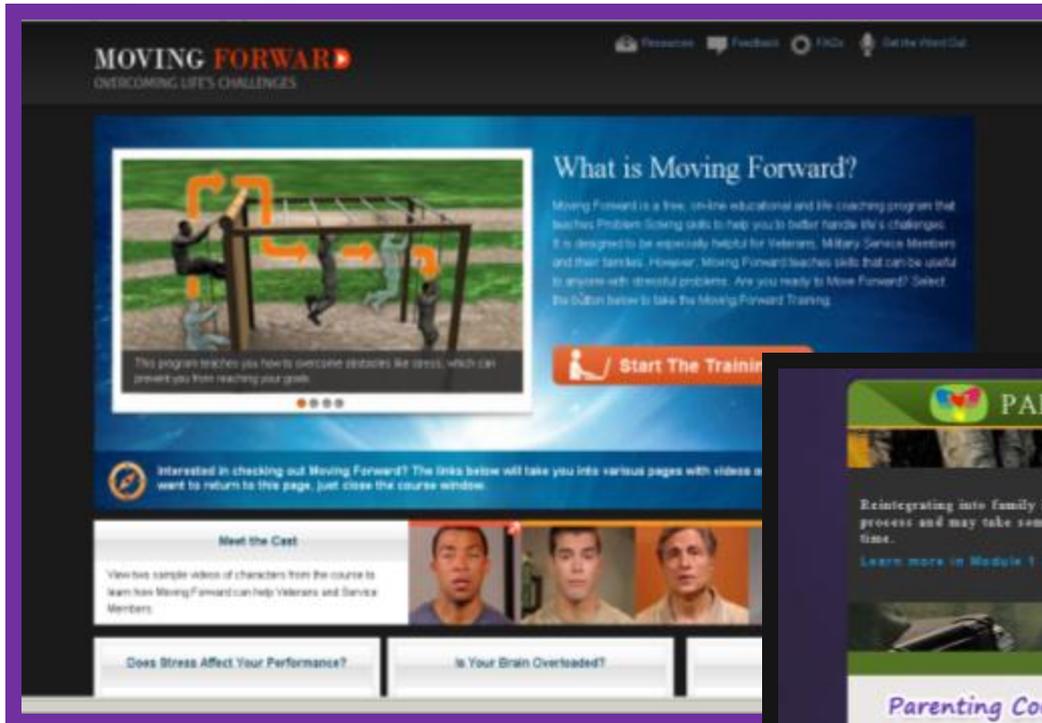
Find advice for helping your child cope with the loss of a parent. Hear from children who have dealt with the death of their military parent.



Dr. Keith Lemmon, a military pediatrician, discusses common physical reactions to stress.



In Collaboration With Veterans Administration (VA)



◀ StartMovingForward.org



MilitaryParenting.org ▶
or
VeteranParenting.org

Apps for Specific Problems



Specific Problems

- **Memory**
- **Pain**
- **Executive function**
- **Emotional problems**
- **Sleep**

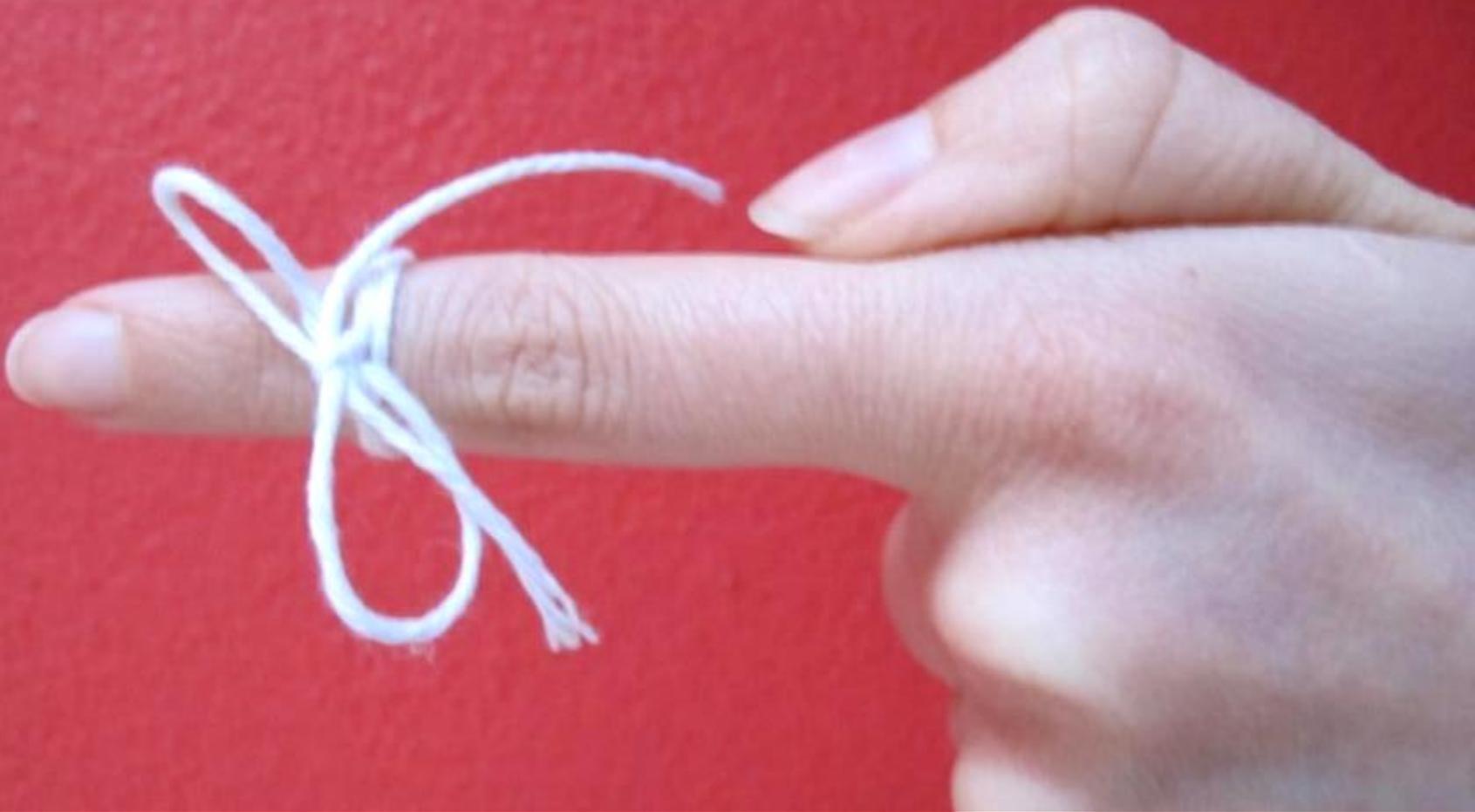


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Memory

Voice Search

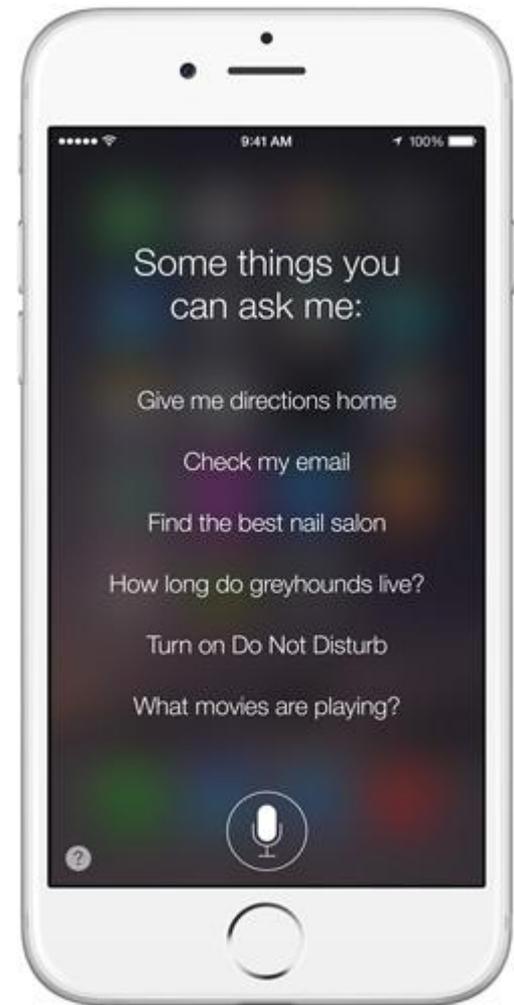
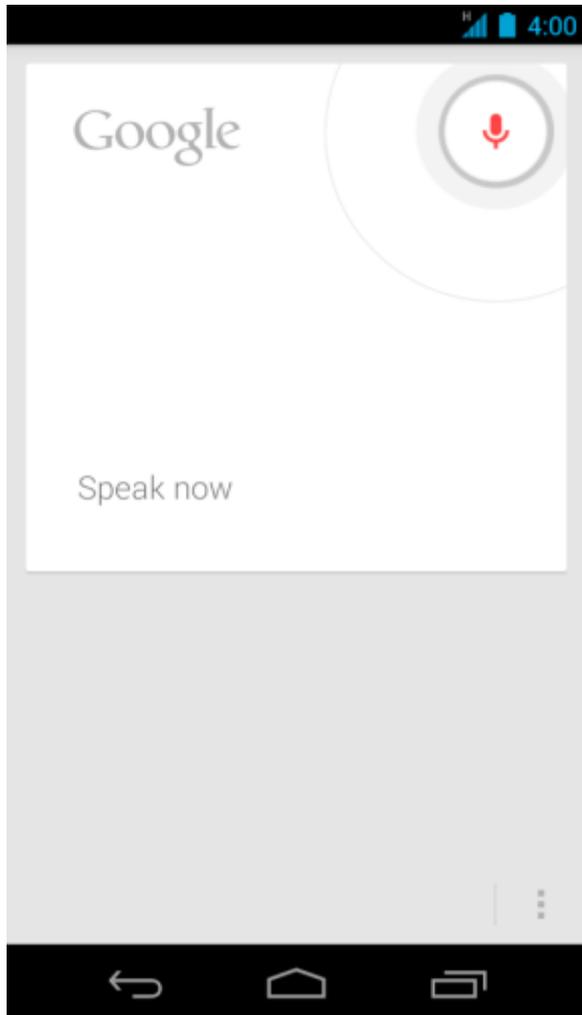
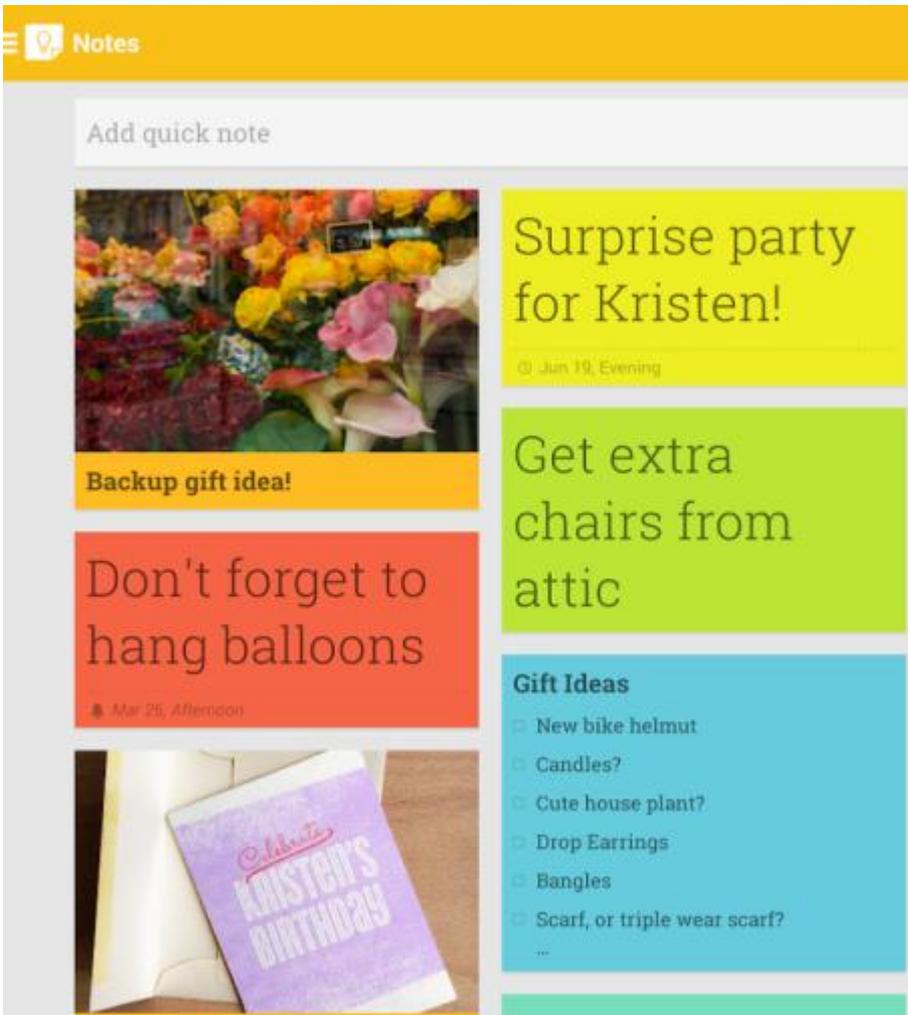


Image sources: <https://play.google.com/store/apps/details?id=com.google.android.googlequicksearchbox>; <https://www.apple.com/ios/siri/>

Built-in



Notes

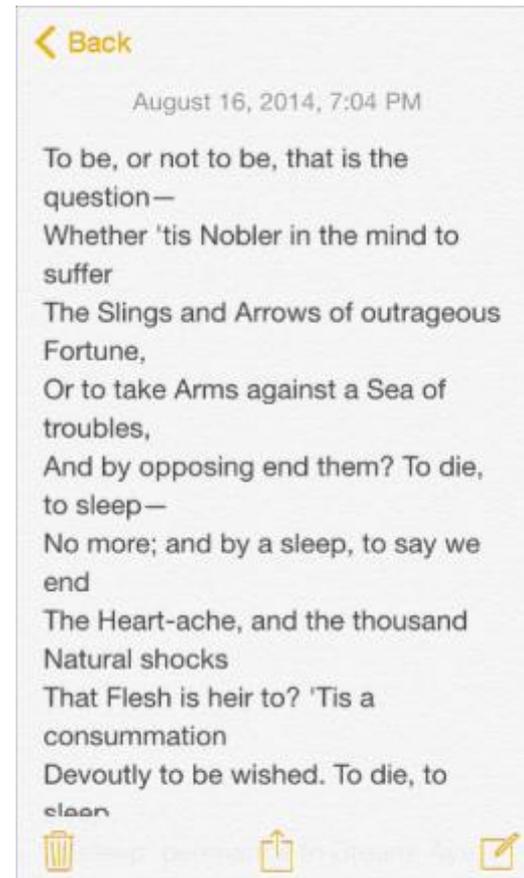


Image sources: <https://play.google.com/store/apps/details?id=com.google.android.keep>;
<https://developer.apple.com/library/ios/documentation/userexperience/conceptual/mobilehig/>;
<https://www.apple.com/ipod-touch/built-in-apps/>

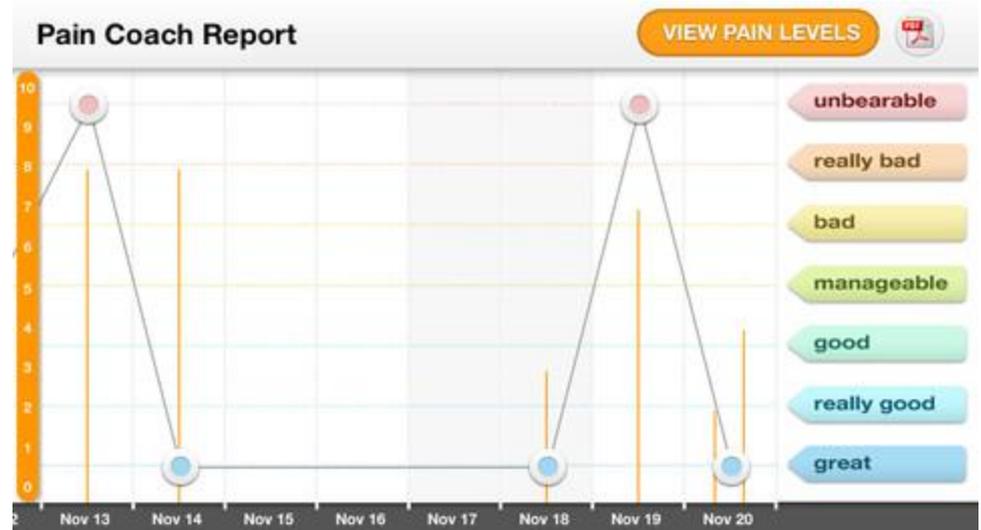
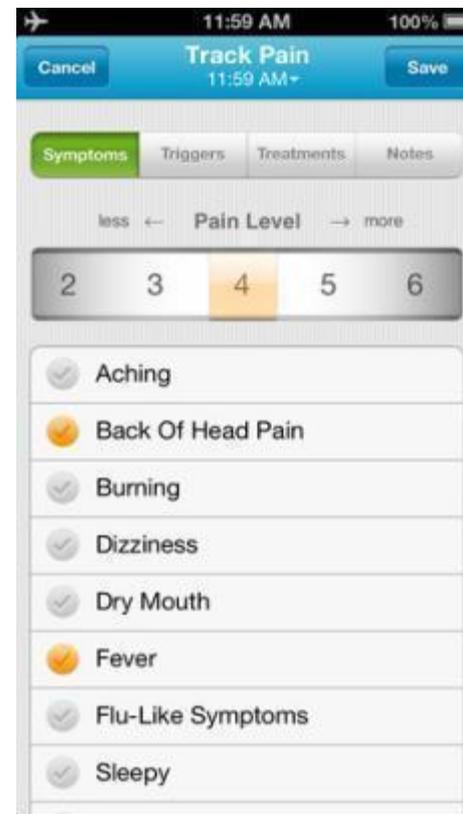
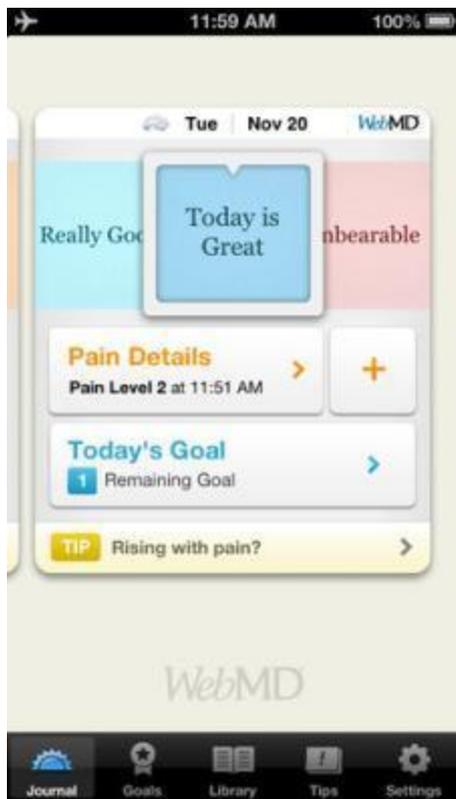
Benefits

- **Always available**
 - Android, iOS, desktop, Web
- **Free**
- **Easier than other apps**
- **Integrates with the phone**



Photo source: woodleywonderworks at <http://www.flickr.com/photos/73645804@N00/4238080094>; Creative Commons License - Attribution 2.0 Generic (CC BY 2.0)

Pain



WebMD Pain Coach iOS, Android – Free

Image source:
<https://play.google.com/store/apps/details?id=com.webmd.paincoach&hl=en>



Photo source: CarbonNYC at <http://www.flickr.com/photos/15923063@N00/5625913019/>; Creative Commons License - Attribution 2.0 Generic (CC BY 2.0)

Executive Function

Phone as Assistive Device

See all the cards

Manage Your Day



Boarding Pass

Lufthansa 9228

Operated by United Airlines

Name: Mr John Smith
Booking number: E12345678



From	To	Group	Seat
SFO	JFK	7	23B
Gate	Terminal	Depart SFO at 11:45...	

Activity Summary

25 miles in August

6 miles less than July

Summary of July & August



Based on your device's location which is periodically sent to Google. [Learn more](#)

Traffic & Transit

57 mins to work

Normal traffic on US - 101



Next Appointment

Agency Meeting

11:30 AM

Ninth Ave, New York, NY 10011

[Email guests](#)

Flights

Delta Air Lines

flight 8772

from DeltaAirLines@e.delta.com

Status: **Scheduled** / Fri, Nov 29, 2013

Depart San Francisco International

SFO 11:45 PM
Terminal 1

Arrive Atlanta Hartsfield-Jackson

ATL Sat, Nov 30, 7:05 AM
Terminal E



Photo courtesy of www.mybasis.com

Photo source: #L98 at <http://www.flickr.com/photos/98310959@N08/9358996750/>; Creative Commons License - Attribution 2.0 Generic (CC BY 2.0)

Behavioral Health

T2 Mood Tracker

Self-monitor, track and reference emotional experiences over a period of days, weeks and months

Features:

- Self-rating on pre-populated categories
- Full note adding
- Graphed results
- Fully customizable categories
- User-set reminders for self-rating
- Send results to providers

Advantages:

- Smart phones are always with us
- Minimizes stigma
- Fills the white space between visits



Image source: National Center for Telehealth & Technology

Breathe2Relax

A portable stress management tool utilizing hands-on diaphragmatic breathing exercise. Breathe2Relax uses state-of-the-art graphics, animation, narration and videos to deliver a sophisticated, immersive experience for the user.

Features:

- Setup guide to assist with tailoring app
- Customizable backgrounds and music
- Immersive tutorial videos
- Body scanner to display effects of stress
- Graphing to track effectiveness
- Audio narration

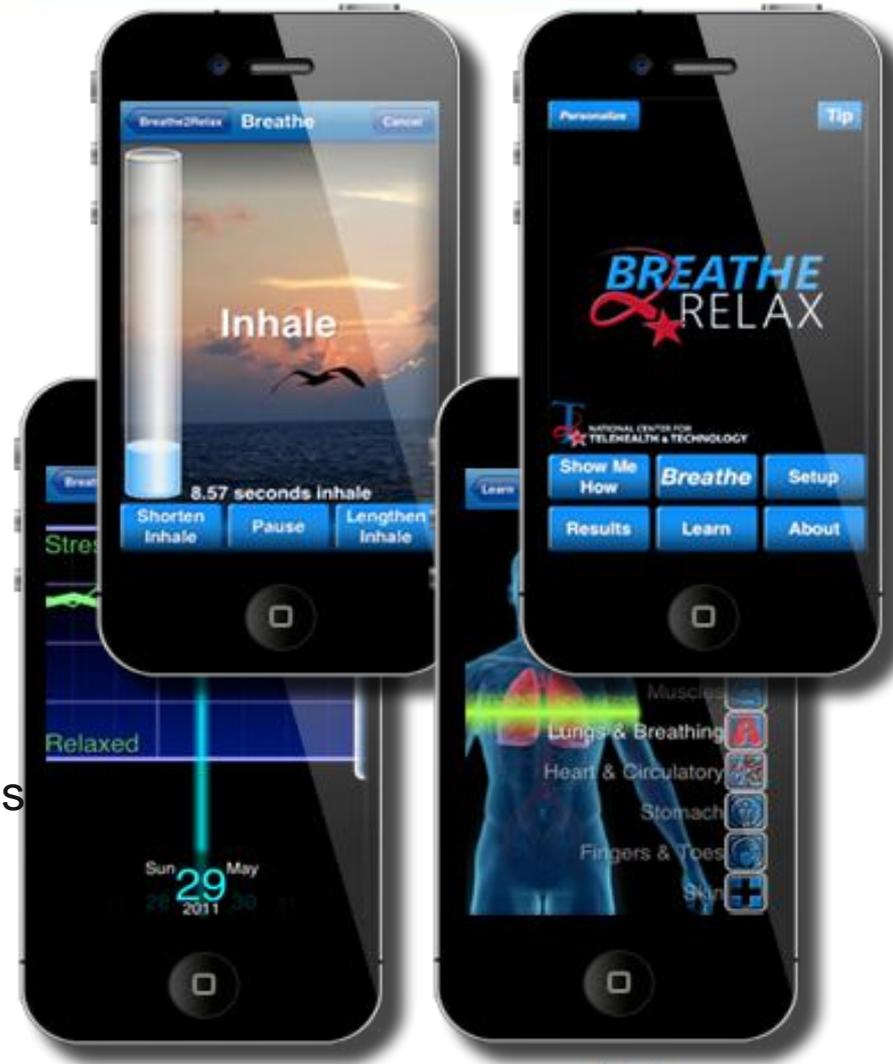


Image source: National Center for Telehealth & Technology

PTSD Coach

T2 collaborated with the VA National Center for Posttraumatic Stress Disorder to develop this app to assist veterans and active duty personnel (and civilians) who are experiencing symptoms of PTSD. It is intended to be used as an adjunct to psychological treatment but can also serve as a stand-alone education tool.

Features:

- Self-assessment of PTSD Symptoms
- Tracking of changes in symptoms
- Manage symptoms with coping tools
- Assistance in finding immediate support
- Customized support information



Image source: National Center for Telehealth & Technology

Virtual Hope Box

Self-care tool for patients. Helps the user cope with symptoms of depression by providing a customizable, virtual “hope box”

Features:

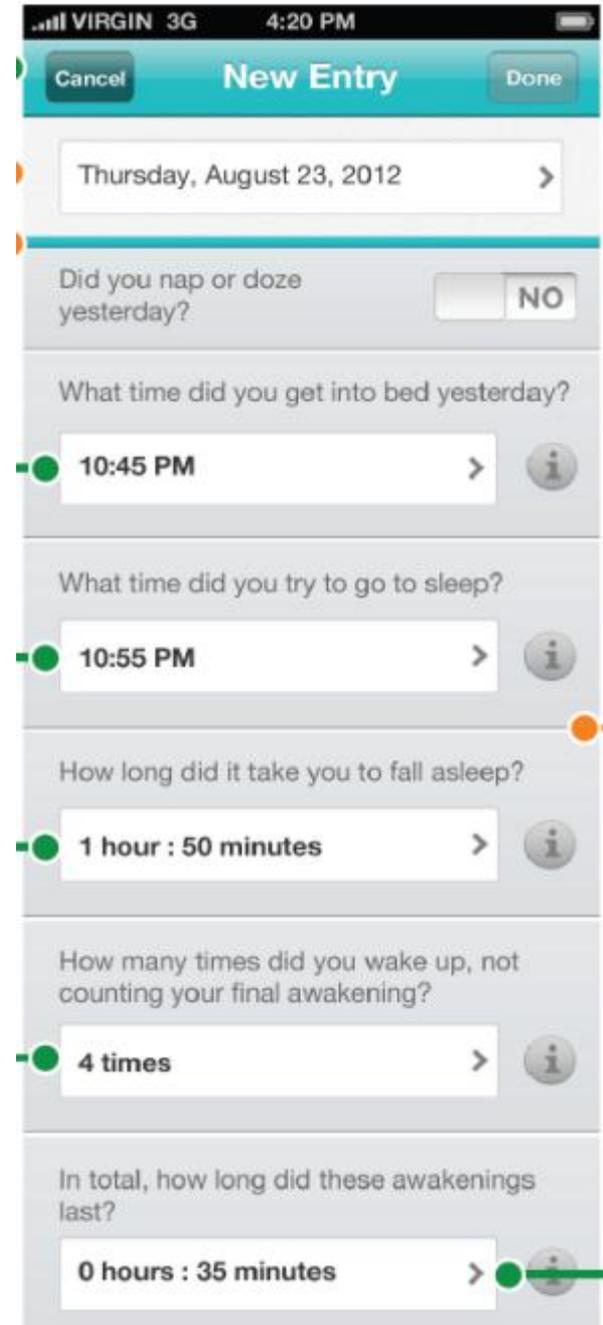
- Customizable pictures, video and music to remind user of reasons for living
- Word games, photo puzzles and other distraction tools
- Guides user in controlled breathing and progressive muscle relaxation
- Inspiring quotes
- Crisis lines and customizable contact information for immediate support





Photo source: Hypereyed at <http://www.flickr.com/photos/69486442@N05/9425505943>; Creative Commons License - Attribution 2.0 Generic (CC BY 2.0)

Sleep



CBT-I Coach iOS, Android Free

Image source: National Center for Telehealth & Technology



Jawbone Up

Web, Android, iOS

\$129.00

Image sources: jawbone.com;
<https://play.google.com/store/apps/details?id=com.jawbone.up&hl=en>





Image source: <https://play.google.com/store/apps/details?id=com.jawbone.up&hl=en>

THERE IS
NO
— “MORAL
COMPASS”
APP.

— CHANGE THE WORLD FROM HERE —

Photo source: www.flickr.com/photos

Ethical Considerations

Ethics Refresher

When using a treatment or tool in therapy that you aren't familiar with, what do you need to consider?

- What ethics codes would inform this?

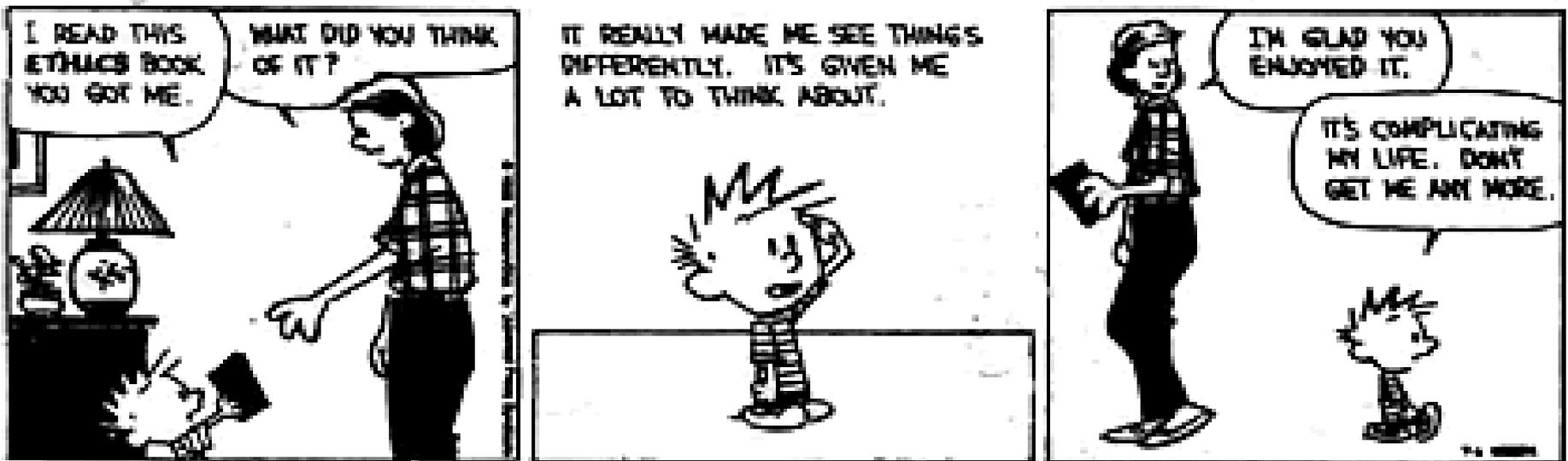


Image source: https://www.rsrevision.com/images/calvin_ethics.gif

Guidelines for Telepsychology

- Telepsychology is defined as the provision of psychological services utilizing telecommunication technologies.
- Psychologist's proper knowledge of and competence in the use of telecommunication technologies.
- The psychologist's need to ensure that client/patient has a complete understanding of the increased risks to loss of security and confidentiality when using telecommunication technologies.
- Understanding of Interjurisdictional Practice.

Applicable American Psychological Association (APA) Standards

- **Standard 2: Competence**
- **Standard 3: Human Relations**
- **Standard 4: Confidentiality**

Standard 2: Competence

This Standard will address two topics of relevance:

- **2.01** Boundaries of Competence
- **2.03** Maintaining Competence

Standard 3: Human Relations

This Standard will address three topics of relevance:

- **3.05** Multiple Relationships
- **3.06** Conflicts of Interest
- **3.10** Informed Consent

Standard 4: Confidentiality

This Standard will address four topics of relevance:

- **4.01** Maintaining Confidentiality
- **4.02** Discussing the Limits of Confidentiality
- **4.03** Recording
- **4.04** Minimizing Intrusions on Privacy



Photo source: www.flickr.com/photos

What's Next?

Trends for the Next Few Years

- More kinds of sensors
- Giving new interactions
- Capturing more data
- Helping us make sense of it



Withings BP Monitor iOS \$179.99

Image source: <http://www.withings.com/us/blood-pressure-monitor.html>



Basis

Web

\$199.00

Photo source: www.mybasis.com

SAT - APR 27

Sunday 28 Apr 2013

Last updated: 4:58p on WED, 08 MAY

TODAY

MON - APR 29

Heart Rate & Skin Temperature

27 APR - 28 APR

9:10p - 6:20a

9:10p

10:00p

12:00a

3:00a

6:20a

10:00a

12:00p

3:00p

6:00p

9:00p

12:00a

HEART RATE

Beats / Minute

High: 135

Avg: 70

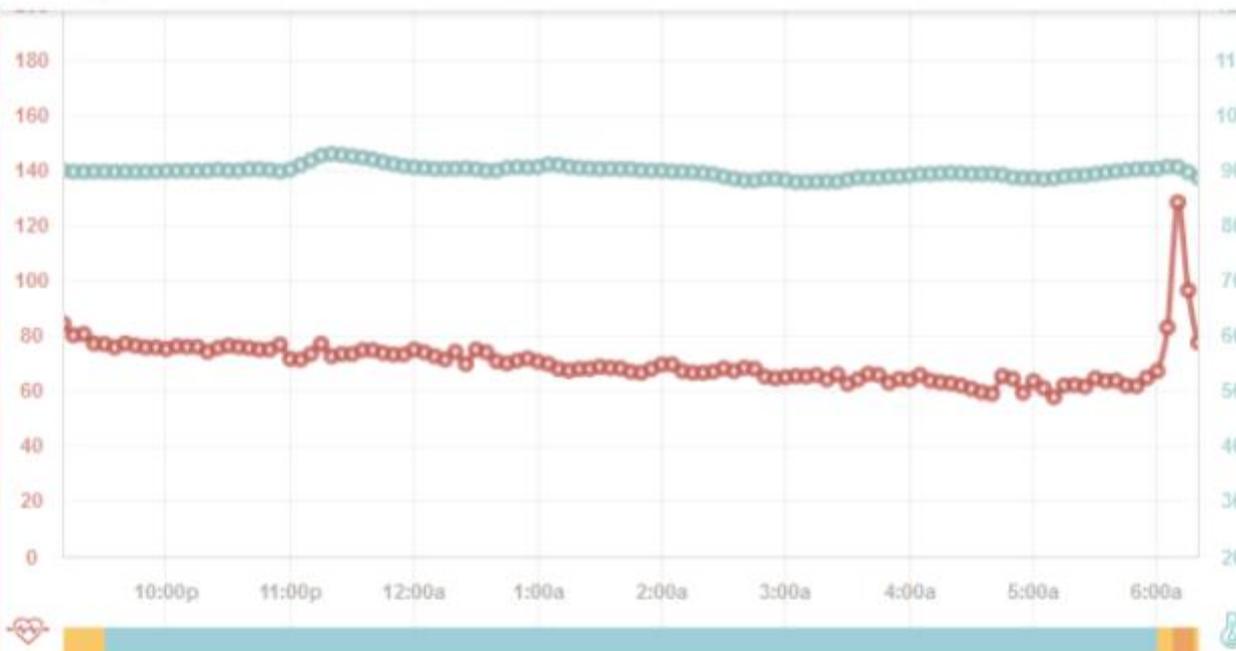
Low: 54

STEPS

CALORIES

SKIN TEMP.

PERSPIRATION



HEART RATE

STEPS

CALORIES

SKIN TEMP.

°F

High: 93.1

Avg: 89.9

Low: 87.8

PERSPIRATION

Sleeping

Awake

Active

Unknown



Muse Web, Android, iOS \$199.00

Image source: www.choosemuse.com/; interaxon.ca/



THALMICLABS
EFFORTLESS INTERACTION

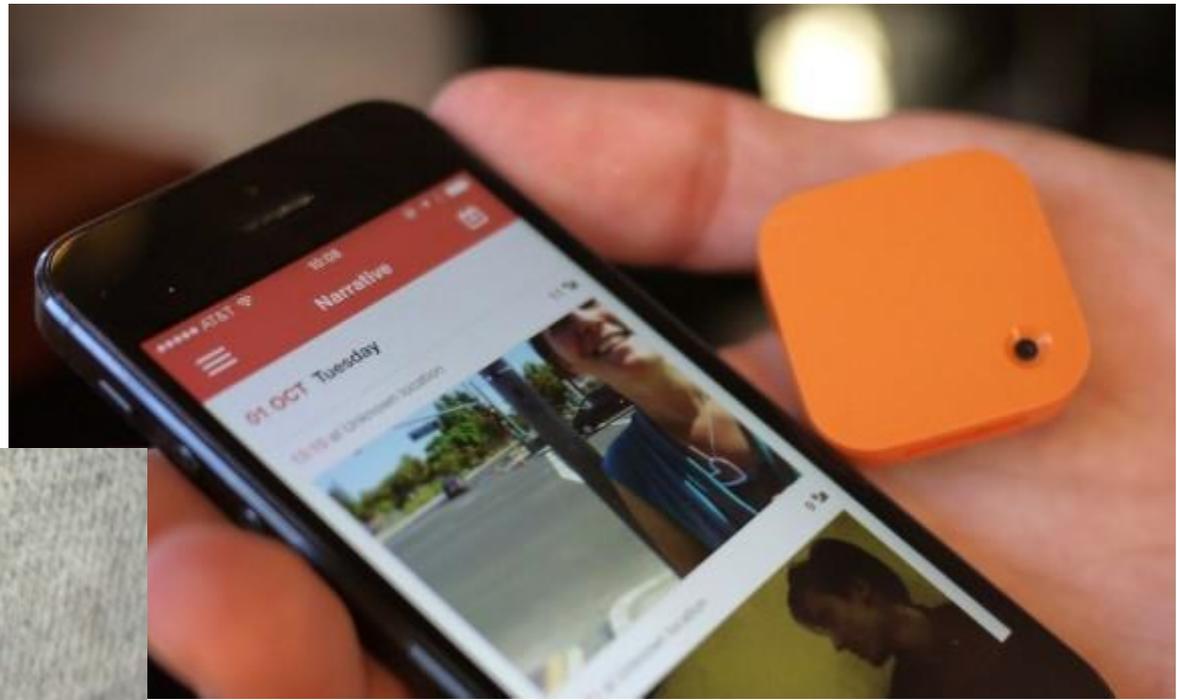


Myo **Windows, Mac, iOS, Android** **\$149.00**



Occulus Rift and Omni Treadmill

Photo source: NASA Jet Propulsion Laboratory

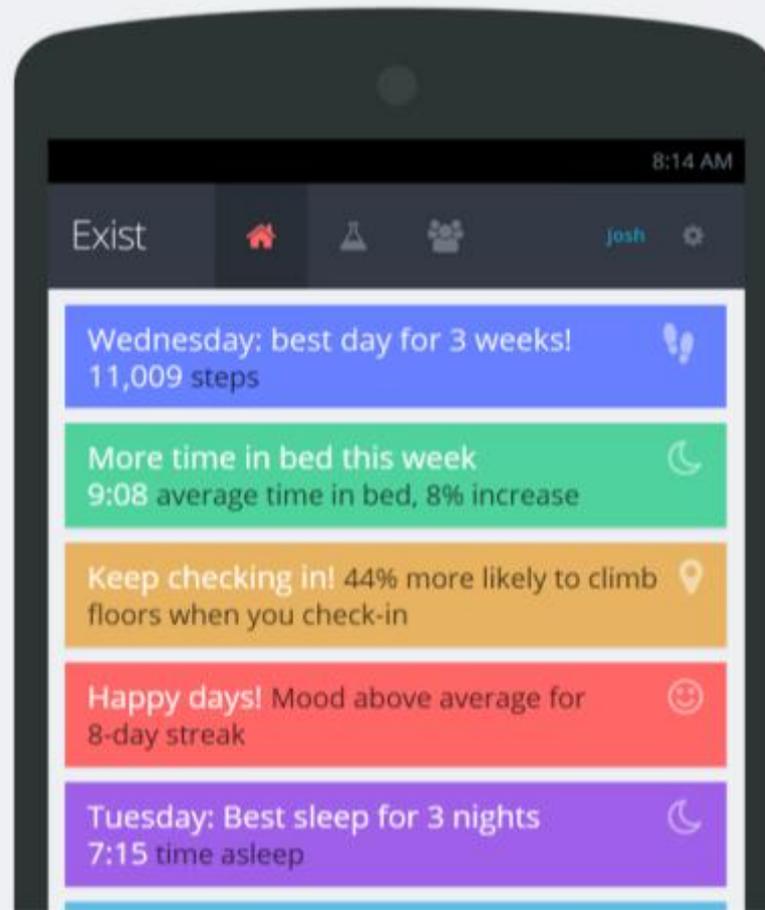


Narrative Web, Android, iOS \$279.00

Exist

Web

\$6/month



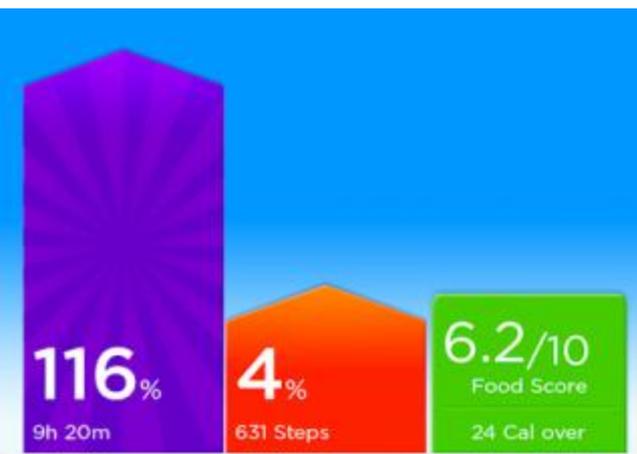
Even if you're actively tracking your life, you're only seeing part of the picture.

Image sources: exist.io

CONNECTED SERVICES



Daily mood by email



< **SEP 28** >
SUNDAY

< **JUL 14** >
MONDAY

< **TODAY** >
AUGUST 11

A Closer Look 7:52 AM
Hello, Sleeperhero

You sleep about 9h 19m per night. That's way more than the typical female UPster, but don't overdo it. More than 10h of sleep can make you groggy and even increase your risk of disease.

[Learn more](#)



DID YOU KNOW? 12:00 am

Insight Report



UP crunched your data from the past 30 days and noticed a pattern. An earlier bedtime means more next day steps. Your typical bedtime was 11:54pm. But when you hit the hay 30m earlier, you were likely to take 500 steps more than your 30 day average. Try for an earlier bedtime tonight and see if the trend continues.

[Learn more](#)



TODAY I WILL 8:22 am

Step Higher

You haven't been your active self lately. Your 7 day step average of 6314 is less than usual. Start fresh with 500 extra steps today?

Not Today

I'M IN

Things to Think About

- Quality of data
 - Studies promising
 - Quality vs. engagement
- Feedback is key
- Jump in

References

- American Psychological Association, Task Force on Telepsychology. (2013). *Guidelines for the Practice of Telepsychology*. Retrieved from <http://www.apapracticecentral.org/ce/guidelines/telepsychology-guidelines.pdf>
- Bush, N. E., Fullerton, N., Crumpton, R., Metzger-Abamukong, M., & Fantelli, E. (2012). Soldiers' personal technologies on deployment and at home. *Telemedicine and e-Health*, 18(4), 253-263. doi:10.1089/tmj.2011.0131
- Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care. *New England Journal of Medicine*, 351, 13-22. doi:10.1056/NEJMoa040603
- National Center for Telehealth & Technology. www.t2health.dcoe.mil

Questions?

david.c.cooper59.civ@mail.mil



Mild TBI Symptom Management Fact Sheets



Provides coping and recovery tips for patients with TBI symptoms:

- Head injury and dizziness
- Headache and neck pain
- Mood changes
- Memory
- Sleep disturbances

To order hard copies or download, visit dvbic.dcoe.mil

Questions?

- Submit questions via the Q&A box located on the screen.
- The Q&A box is monitored and questions will be forwarded to our presenters for response.
- We will respond to as many questions as time permits.



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Webinar Evaluation/Feedback

We want your feedback!

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Nov. 20, 2014

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Next DCoE TBI Webinar: *Performance Triad: Sleep, Nutrition, Exercise*

Jan. 8, 2015

1-2:30 p.m. (EST)

DCoE Contact Info

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