

Live Smart Texas | December 10, 2020

Finding Effective Technology-Based Tools for the Promotion of Healthy Lifestyles During COVID-19

Today's Conversation ...

Consider the landscape of technology-based tools available to support healthy lifestyle behaviors

Decide what to look for when choosing a program, thereby enabling you to successfully navigate the very large market of remote programs and apps intended to promote healthy lifestyles

Discuss what makes implementation successful, and how to overcome (inevitable) challenges

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COVID-19 |  Open Access |  

Individuals with obesity and COVID-19: A global perspective on the epidemiology and biological relationships

Barry M. Popkin , Shufa Du, William D. Green, Melinda A. Beck, Taghred Algaith, Christopher H. Herbst, Reem F. Alsukait, Mohammed Alluhidan, Nahar Alazemi, Meera Shekar

First published: 26 August 2020 | <https://doi.org/10.1111/obr.13128> | Citations: 21

“People with obesity who contracted SARS-CoV-2 were 113% more likely than people of healthy weight to be hospitalized, 74% more likely to be admitted to an ICU, and 48% more likely to die.”

A constellation of physiological and social factors drives these grim statistics:

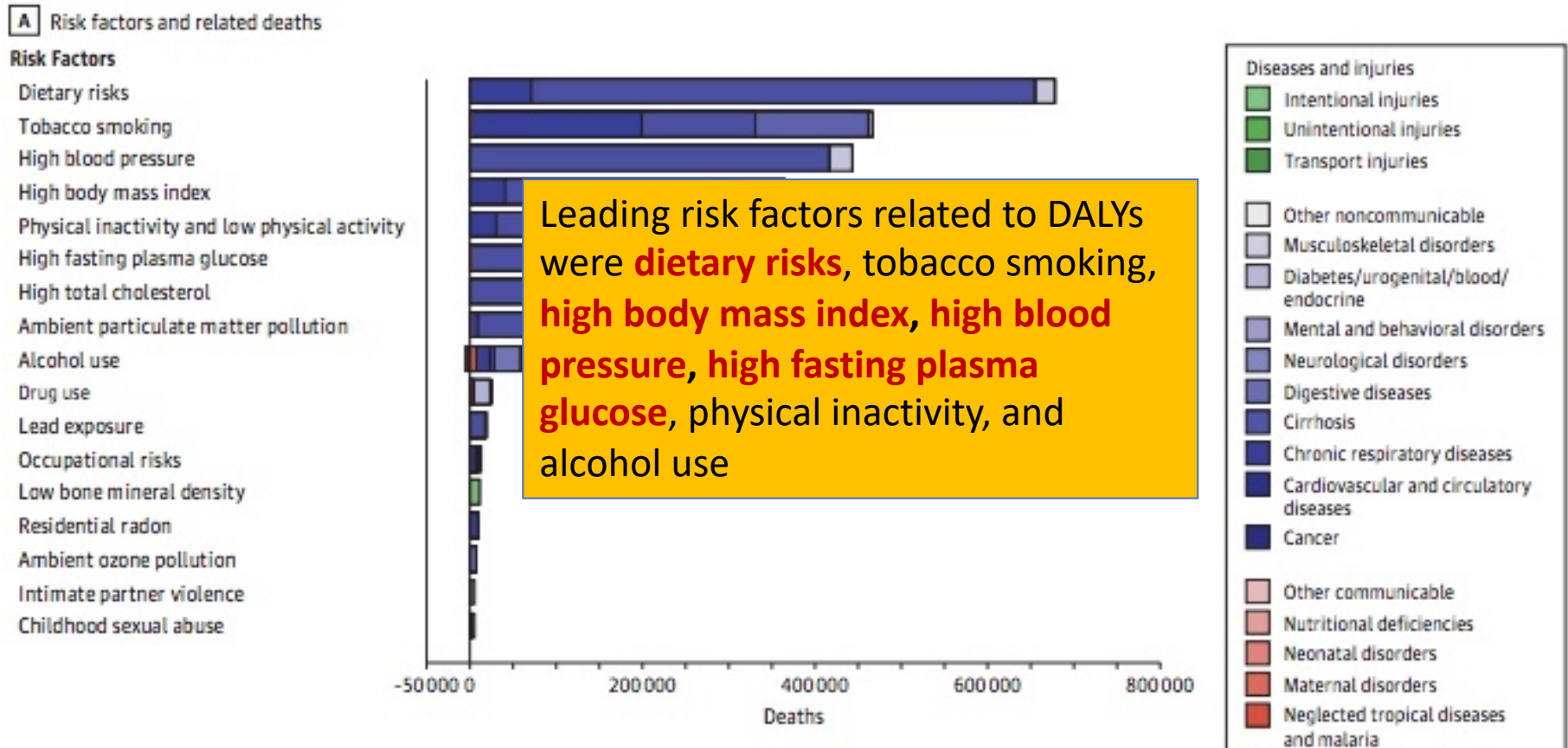
The biology of obesity, including impaired immunity, chronic inflammation, and blood that’s prone to clot, all of which can worsen COVID-19.

And, because obesity is so stigmatized, people with obesity may avoid medical care.

“ ... morbidity and chronic disability now account for nearly half of the U.S. health burden, and improvements in population health in the United States have not kept pace with advances in population health in other wealthy nations.”

-- US Burden of Disease Collaborators, JAMA 2013;310(6):591-608

Figure 3. Number of Deaths and Percentage of Disability-Adjusted Life-Years Related to the 17 Leading Risk Factors in the United States in 2010 for Both Sexes Combined



Considerations When Choosing a Program

- Will people use it to improve their health?
 - Acceptability, feasibility, usability
- Will its use result in measureable behavior change?
 - Efficacy
- Will it result in clinically significant improvements in health outcomes?
 - Effectiveness
- Does it work in the “real world”?
 - Adoption, implementation, dissemination

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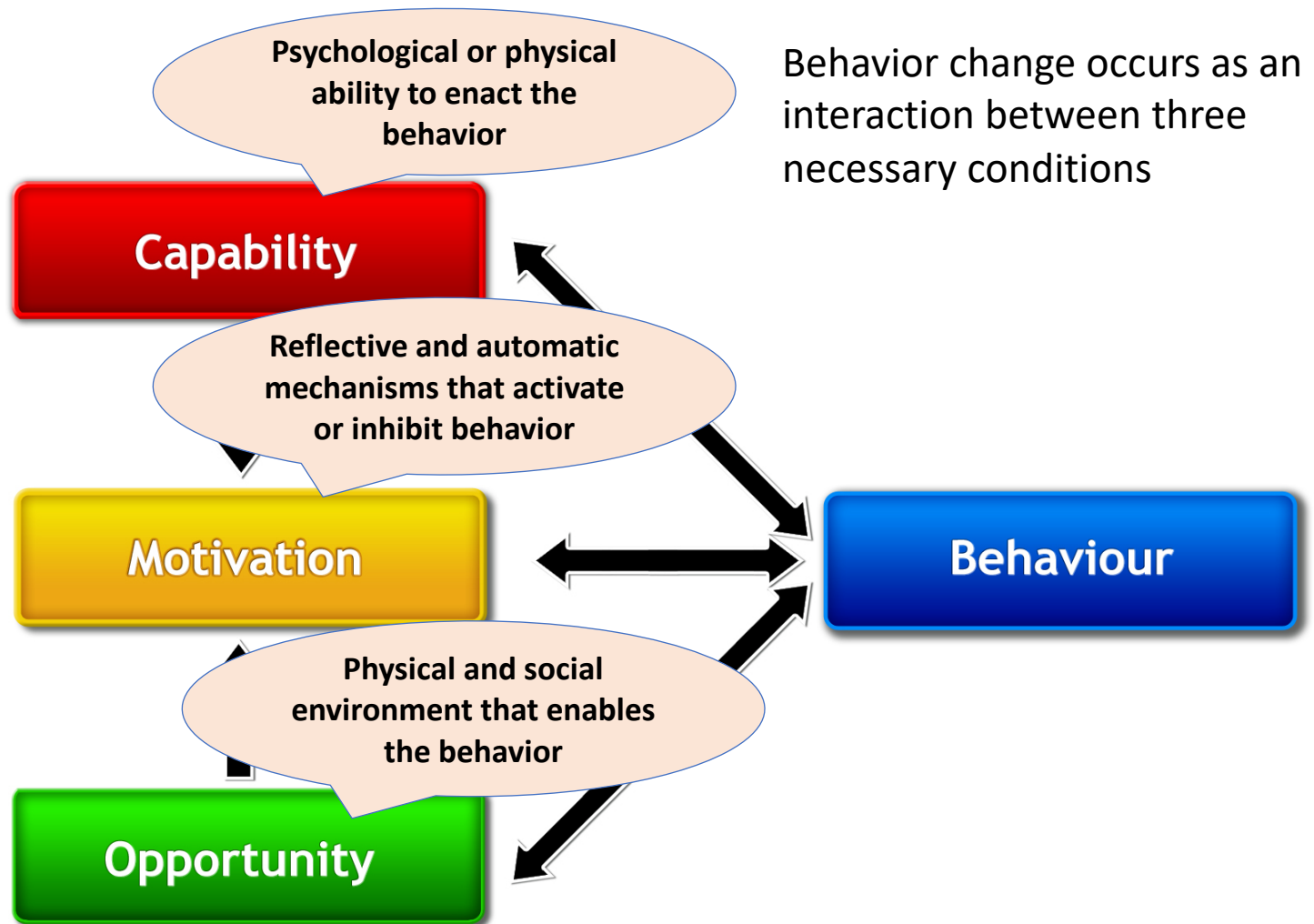
Will people use it to improve their health?

1. A person must be motivated to want the app/program
2. A person must be able to afford the app/program (and the connected device – a smart phone, a computer, a tablet)
3. Once the app/program is acquired and installed, the person needs to remember to use it/wear it/update it (and recharge it)
4. The app/program must be able to track targeted behavior(s)
5. Assuming information is collected with some accuracy, data must be presented back to the user in a manner that can be understood, motivates action, and sustains that motivation toward improved health

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Will its use result in measureable behavior change?



Systematic review of reviews of intervention components associated with increased effectiveness in dietary and physical activity in

Colin J Greaves^{1*}, Kate E Sheppard¹, Charles Abraham², Wendy Harder³, Peter Schwarz⁶, The IMAGE Study Group⁷

Abstract

Background: To develop more efficient programmes for promoting dietary (to prevent type 2 diabetes) it is critical to ensure that the intervention components with effectiveness are included. The aim of this systematic review of reviews was to identify components associated with increased change in diet and/or physical activity in individuals at risk of developing type 2 diabetes.

Methods: MEDLINE, EMBASE, CINAHL, PsycInfo, and the Cochrane Library were searched for reviews of interventions targeting diet and/or physical activity in adults at risk of developing type 2 diabetes. Two reviewers independently selected reviews and rated methodological quality. Components relating effectiveness to intervention components were extracted, graded and synthesized.

Results: Of 3856 identified articles, 30 met the inclusion criteria and 129 articles were included in the review. These included causal analyses (based on randomisation of participants) and non-causal analyses (based on observational studies).

Evidence-Based Behavior Change Techniques

- Information about risk
- Social norms
- **Intention formations**
- **Goal setting**
- Feedback on progress
- **Self-monitoring**
- Behavioral contracts
- Practice
- Social support
- **Role modeling**
- Stress management
- Time management

Recommendations for producing measurable (and clinically meaningful) behavior change:

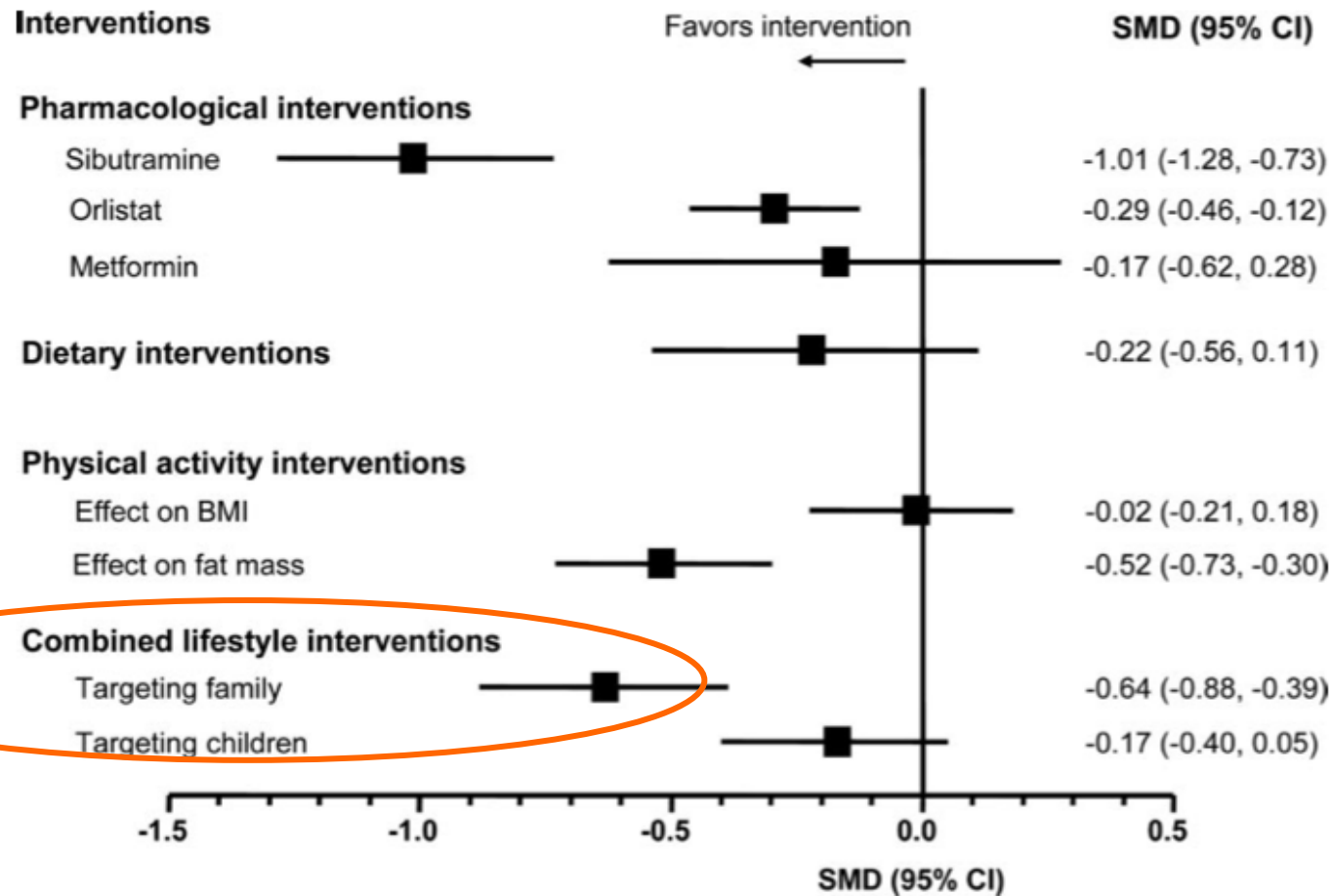
- Use well-defined, established behavior change techniques
- Engage the social support of others
- Target both diet and physical activity

What to Look for When Choosing a Program

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Will its use result in clinically significant improvements in health outcomes?

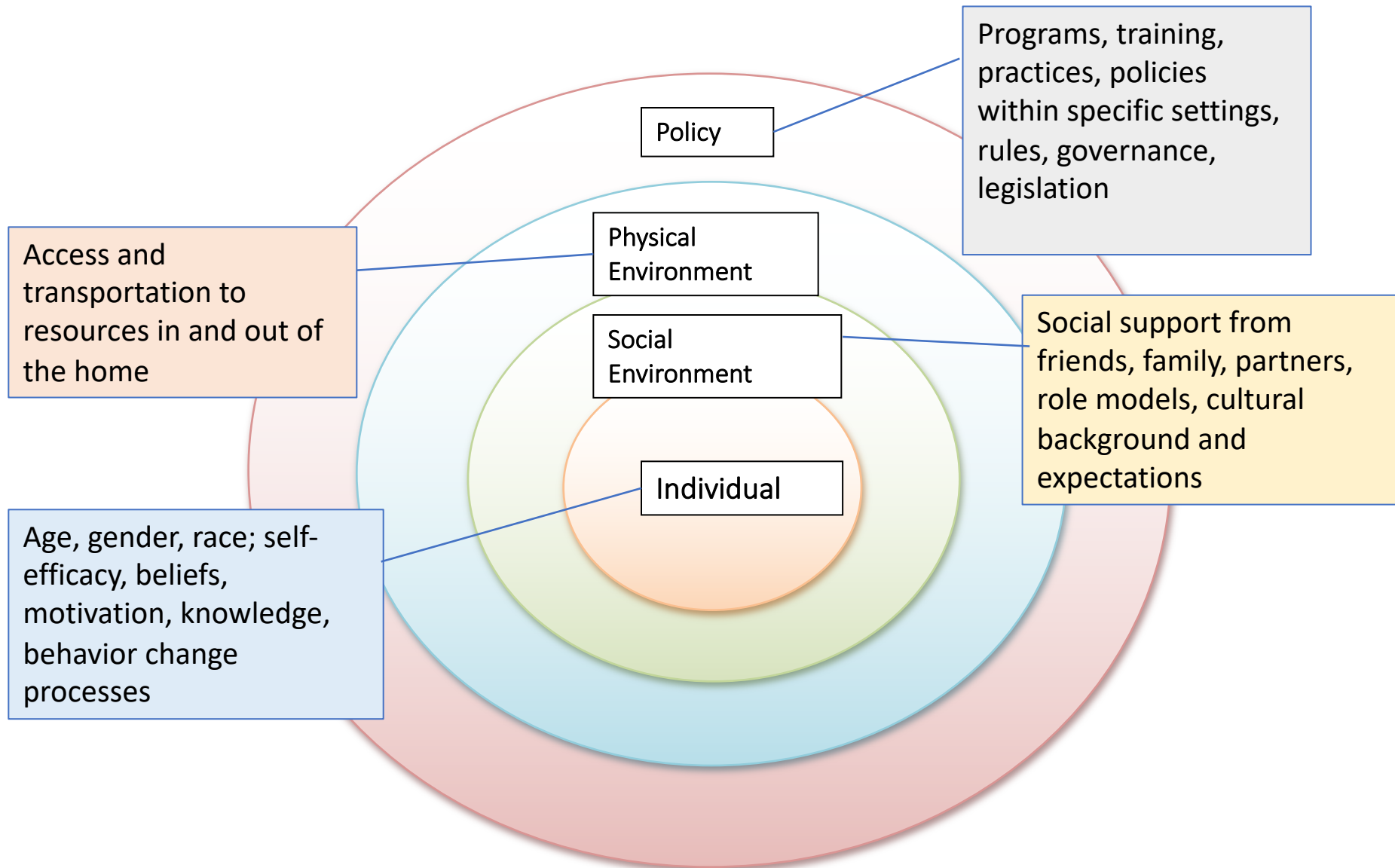
Efficacy of weight loss interventions for overweight children: a meta-analysis of 61 RCTs



What to Look for When Choosing a Program

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 - **Adoption, implementation, dissemination**

Also, and critically, basic needs security (food, housing, finances) must be considered

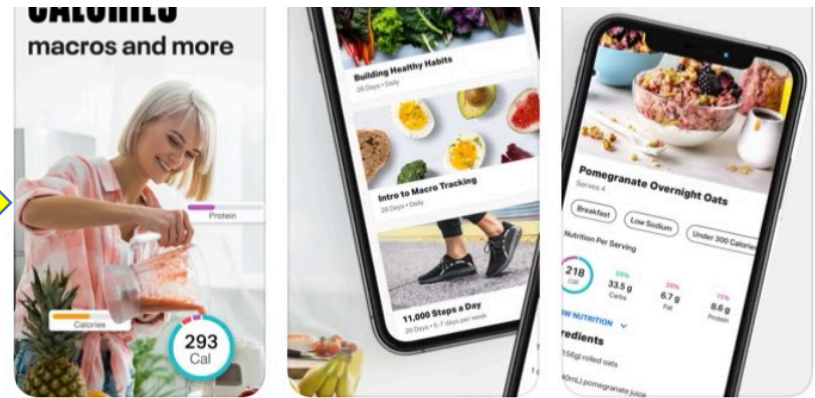
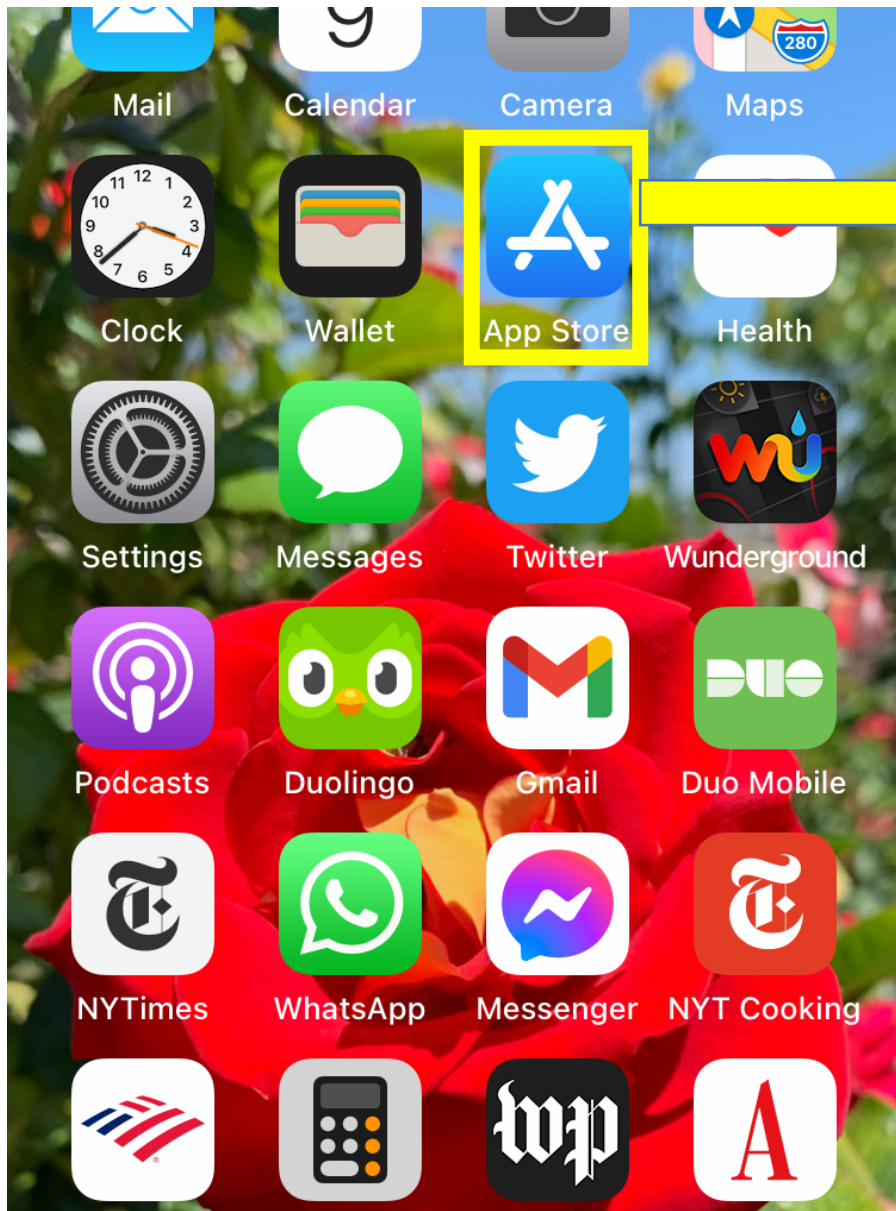


Today's Conversation ...

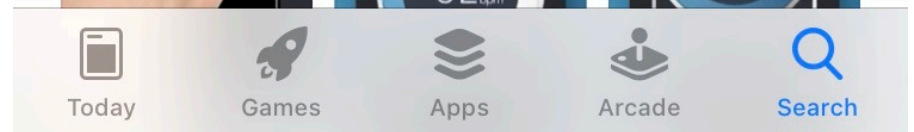
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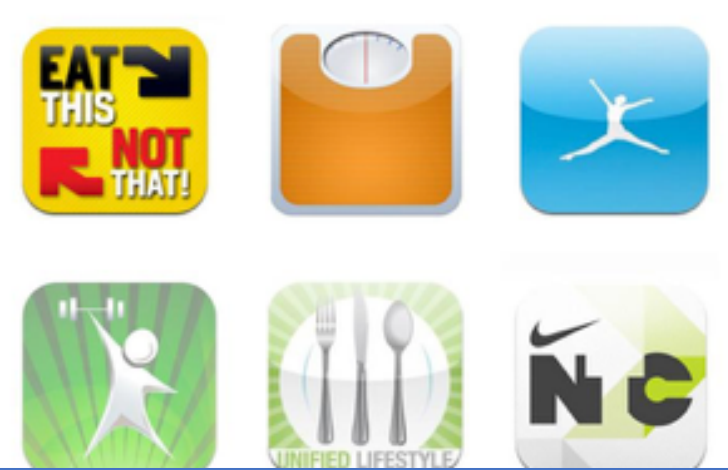
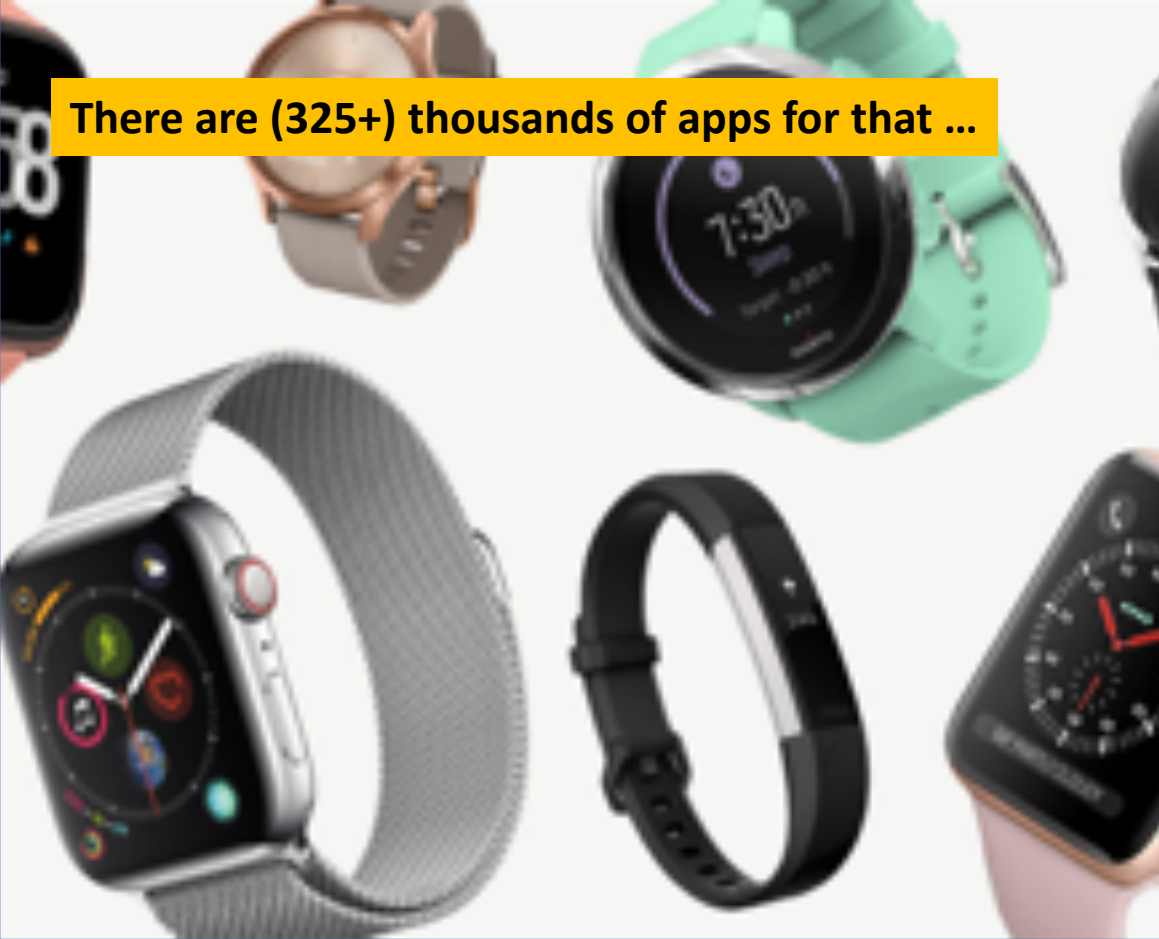
Discuss what makes implementation successful, and how to overcome (inevitable) challenges



Instant Heart Rate:...
Pulse Tracker & Stress T...
★★★★★ 163K
GET
In-App Purchases



There are (325+) thousands of apps for that ...



97°



Lightning drops

Popular New Exercise App Just Tells Users They Ran 5 Miles A Day No Matter What

NEWS IN BRIEF · Science & Technology · Fitness · ISSUE 50-39 · Oct 3, 2014



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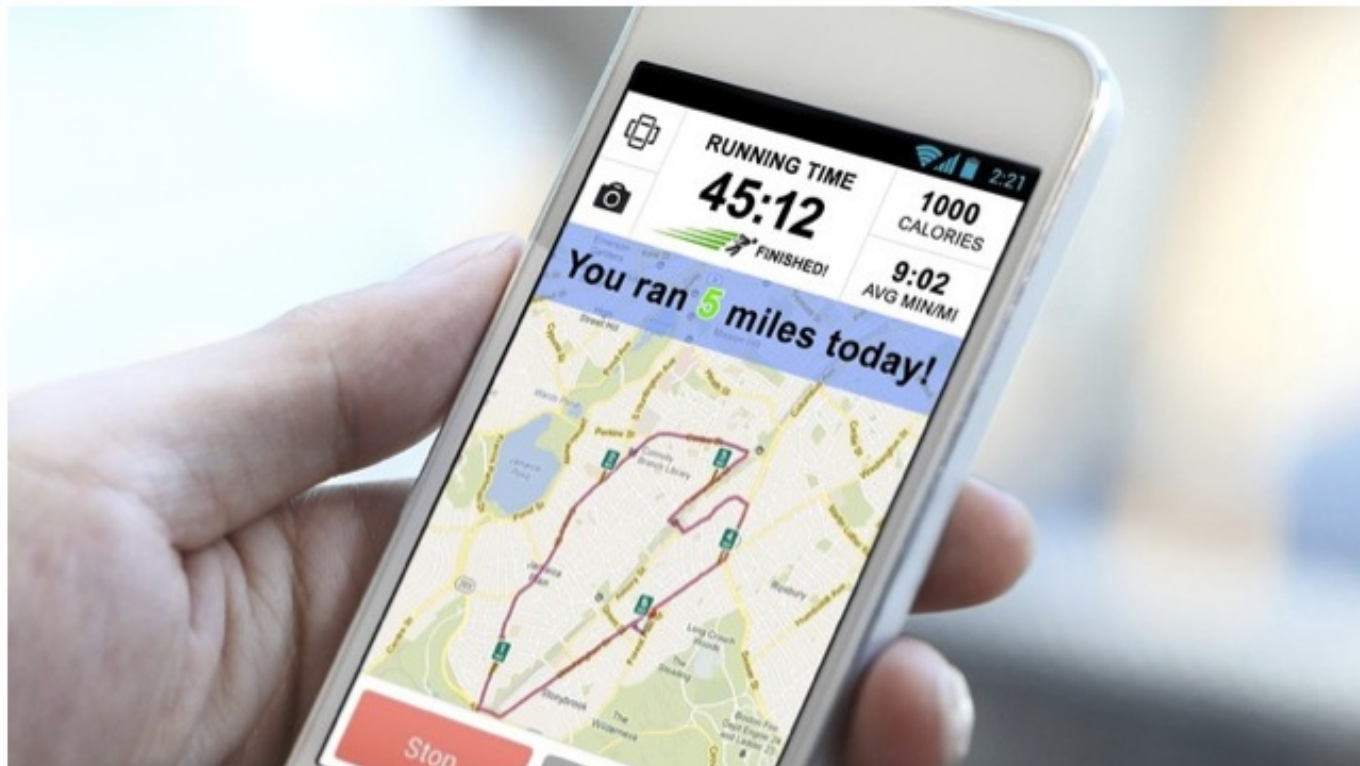


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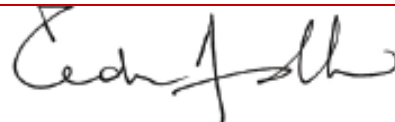


509



WHO GUIDELINE
**RECOMMENDATIONS
ON DIGITAL
INTERVENTIONS
FOR HEALTH SYSTEM
STRENGTHENING**

“A key challenge is to ensure that all people enjoy the benefits of digital technologies. We must make sure that innovation and technology helps to **reduce the inequities in our world**, instead of becoming another reason people are left behind. **Countries must be guided by evidence** to establish sustainable harmonized digital systems, **not seduced by every new gadget.**”



Dr Tedros Adhanom Ghebreyesus

Director-General, World Health Organization

Content analysis of commercial health promotion and weight loss apps: A Cautionary Tale

- “Majority lacked any expert recommendations”¹
- “General lack of theoretical content”¹
- “Insufficient evidence-informed content”²
- “Apps with more evidence-based strategies are least popular amongst consumers”³

1. Schoffman DE, et al. Mobile apps for pediatric obesity prevention and treatment, healthy eating, and physical activity promotion: just fun and games? *Transl Behav Med* 2013 Sep;3(3):320-325
2. Breton ER, et al. Weight loss-there is an app for that! But does it adhere to evidence-informed practices? *Transl Behav Med* 2011 Dec;1(4):523-529
3. Pagoto S, et al. Evidence-based strategies in weight-loss mobile apps. *Am J Prev Med* 2013 Nov;45(5):576-582.

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What is the “best” digital app or program to promote health behavior change?

Engaging

Functional

Aesthetically Appealing

Credible

Evaluating the quality of health mobile apps

JMIR MHEALTH AND UHEALTH

Stoyanov et al

Original Paper

Mobile App Rating Scale: A New Tool for Assessing the Quality of Health Mobile Apps

Stoyan R Stoyanov^{1,2*}, MRes(Psych); Leanne Hides^{1,2*}, PhD(Clin); David J Kavanagh^{1,2}, PhD; Oksana Zelenko^{2,3}, PhD; Dian Tjondronegoro^{2,4}, PhD; Madhavan Mani^{1,2}, MSc

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²The Young and Well Cooperative Research Centre (Young and Well CRC), Abbotsford, VIC, Australia

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⁴Information Systems, Science and Engineering Faculty, Queensland University of Technology (QUT), Brisbane, QLD, Australia

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Institute of Health & Biomedical Innovation

School of Psychology and Counselling

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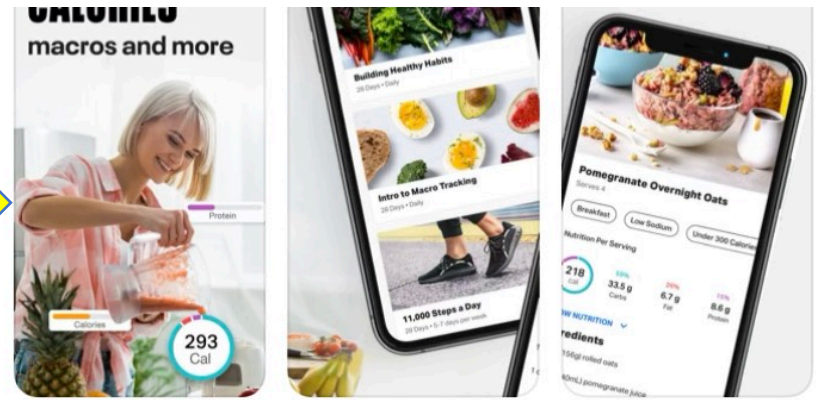
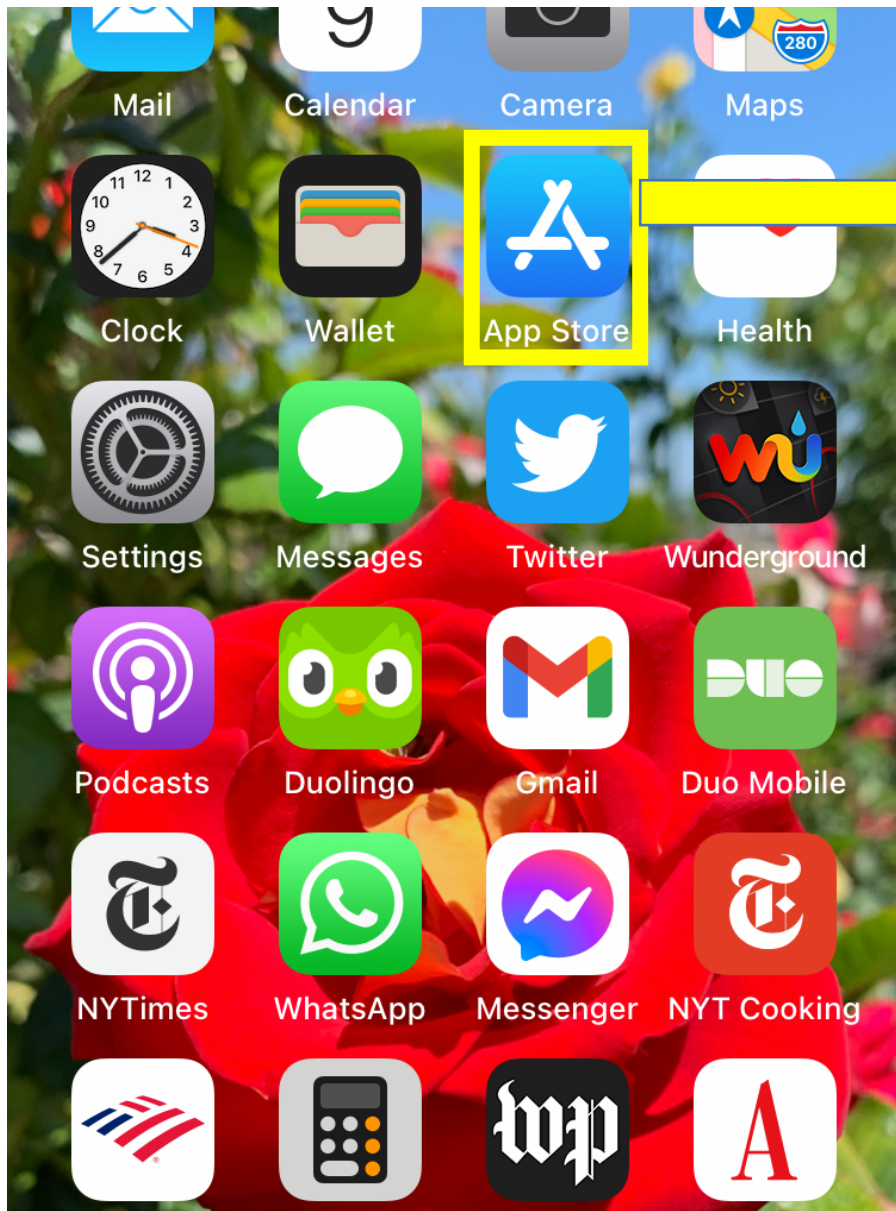
60 Musk Avenue

Brisbane, QLD,

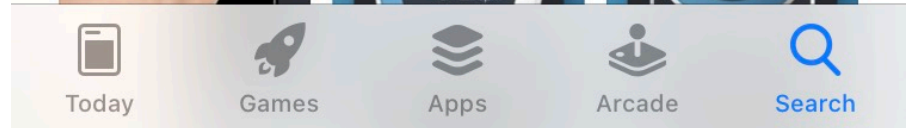
Australia

MARS Checklist Information Criterion: Contains high quality information from a credible source (1 = minimum, 5 = maximum)

- Accuracy of app description (in app store). Does the app contain what is described?
- Does app have specific, measureable, and achievable goals?
- Quality of information: Is app content correct, well written, and relevant to the goal/topic of the app?
- Quantity of information: Is info presented within the scope of the app, and comprehensive but concise?
- Visual information: Is visual explanation of concepts – charts, graphs, videos – clear, logical and correct?
- Credibility: Does the app come from a legitimate source?
- Evidence base: Has the app been trialed or tested? (must be verified by published evidence from the scientific literature)
- Data Safeguarding and Privacy (not one of the criterion but very important)



Instant Heart Rate:...
Pulse Tracker & Stress T...
★★★★★ 163K
[GET](#)
In-App Purchases





myfitnesspal

Swipe to learn more



[Sign Up](#)

[Log In](#)

Accuracy of app description = Does the app contain what is described?

Verizon LTE 10:47 AM

myfitnesspal.com

Calorie Counter & Diet Tracker by MyFitnessPal.com
MyFitnessPal.com
INSTALLED

OPEN

myfitnesspal

Log In Sign Up

ABOUT FOOD EXERCISE APPS COMMUNITY BLOG

iPhone iPad Android Windows

MyFitnessPal iPhone App

Reach your weight loss goals with MyFitnessPal, the best calorie counter on the iPhone. Set a daily calorie goal and record your daily food and exercise to make sure you stay on track. Then watch the pounds come off!

Our iPhone app gives you full mobile access to your MyFitnessPal.com account, so you can log your food and exercise from anywhere, at any time. All changes made on your iPhone will be synchronized with our website and vice versa.

Best of all, both the iPhone app and our website are **FREE!** So don't wait - start changing your life today.

Download on the App Store

Screenshots

Daily

Calories	1,210	1,077	285	792	418
Protein	100g	100g	0g	0g	0g

Add Entry

Strawberries - Raw	100g
Milk	100g
Serving Size	1.0g, 100g
Number of Servings	1
Macronutrient Breakdown	
Calories	418
Total Fat	6.8g
Saturated Fat	0g
Phosphorus	0g
Iron	0.2g
Cholesterol	0g
Sodium	0g
Protein	100g

Progress

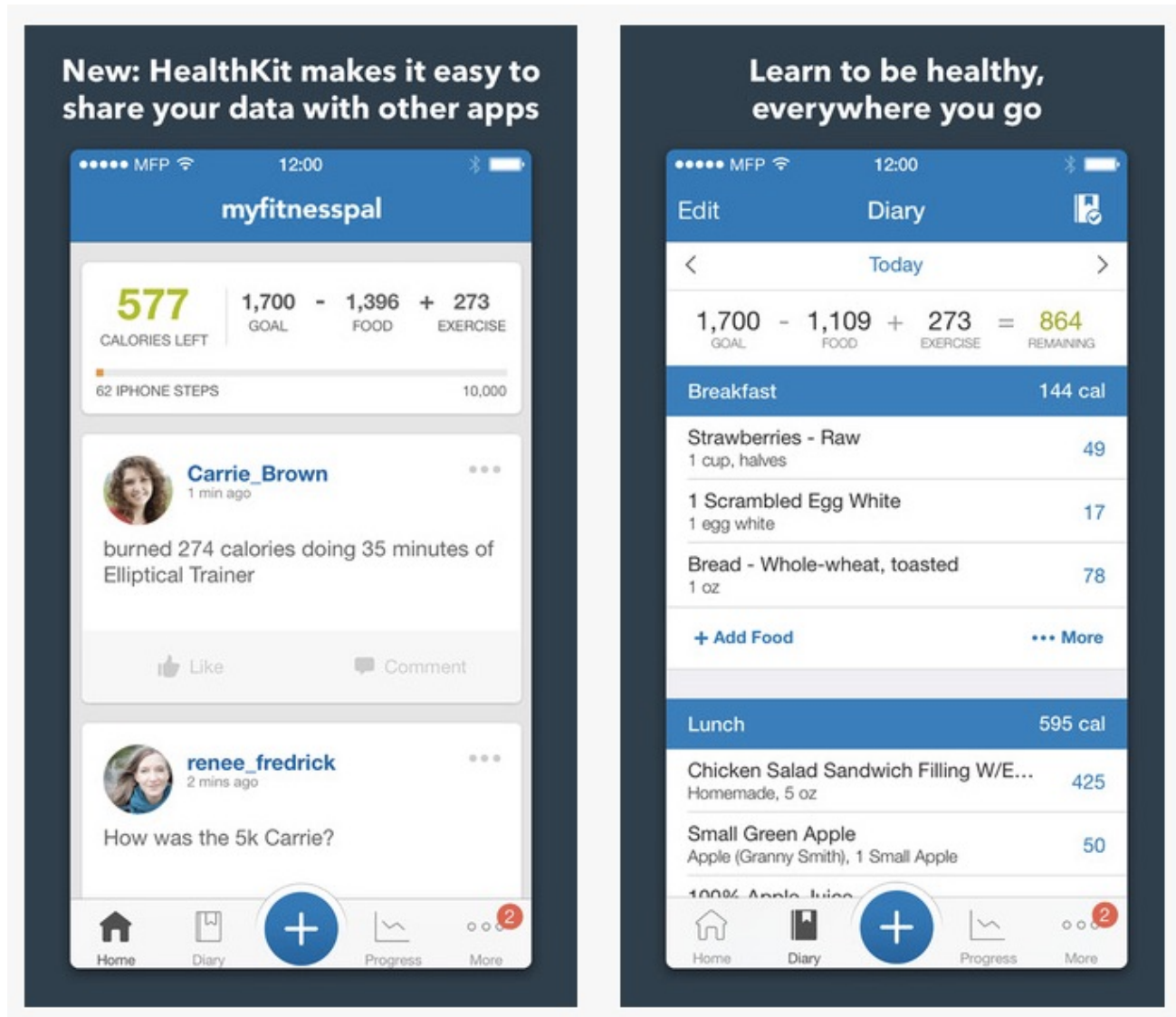
Weight	160	160	160	160	160
Calories	1000	1000	1000	1000	1000

Nutrition

Macronutrient	Total	Goal
Carbohydrates	60%	50%
Fat	20%	20%
Protein	20%	30%

“Lose weight with MyFitnessPal, the fastest and easiest-to-use calorie counter for iOS. With the largest food database by far (over 5,000,000 foods) and amazingly fast and easy food and exercise entry, we'll help you take those extra pounds off! And it's **FREE!** There is no better diet app – period.”

Does app have specific, measurable, and achievable goals?



Quality of information: Is app content correct, well written, and relevant to the goal/topic of the app?

NUTRITION 101 CALORIES

CALORIES ARE ENERGY PROVIDED BY FOOD

MACRONUTRIENTS PROVIDE CALORIES

THERE ARE **3** TYPES OF MACRONUTRIENTS



4 calories per gram

CARBOHYDRATES



4 calories per gram

PROTEIN



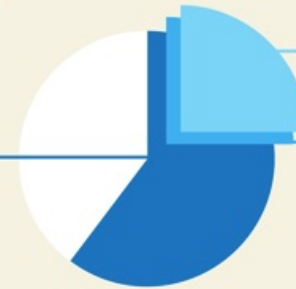
9 calories per gram

FAT

EXCESS ENERGY CONSUMED IS STORED AS FAT

RECOMMENDED COMPOSITION OF CALORIES
FROM CARBS, PROTEIN AND FAT IN THE DIET:

CARBOHYDRATES
45 - 65%



FAT
20 - 35%

PROTEIN
10 - 35%

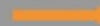
*percentage based on daily calories

HOW IT ALL BREAKS DOWN:



1 POUND
OF BODY FAT

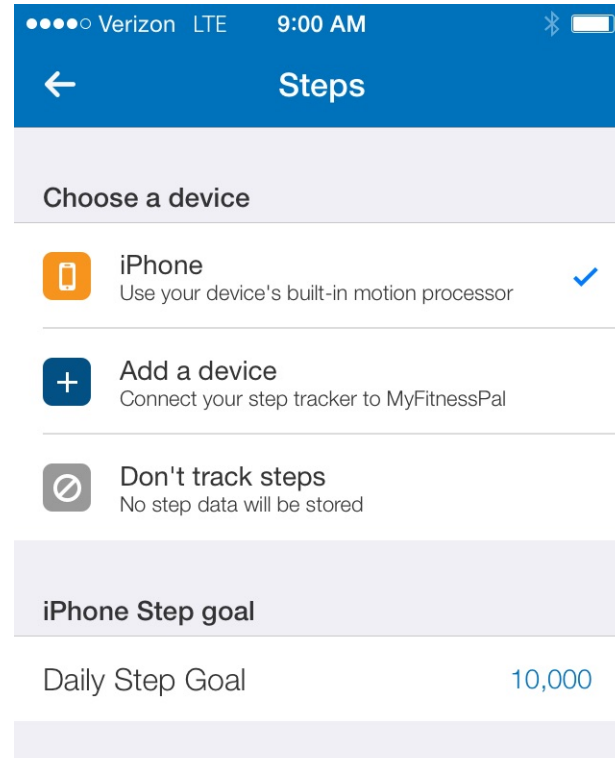
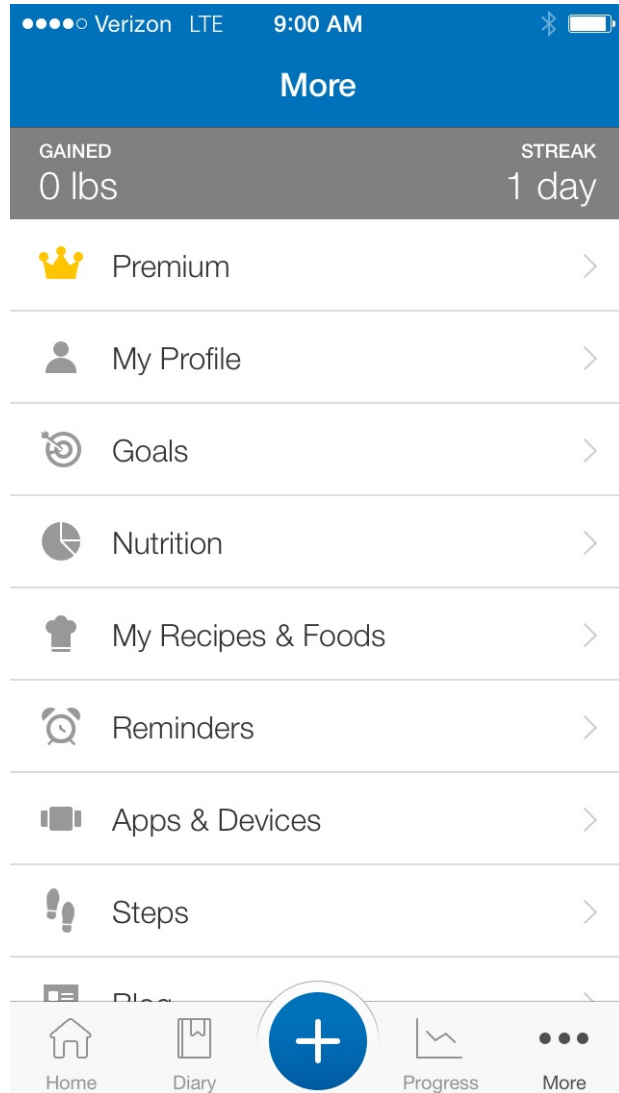
CONTAINS



EACH GRAM PROVIDES 9 CALORIES OF ENERGY



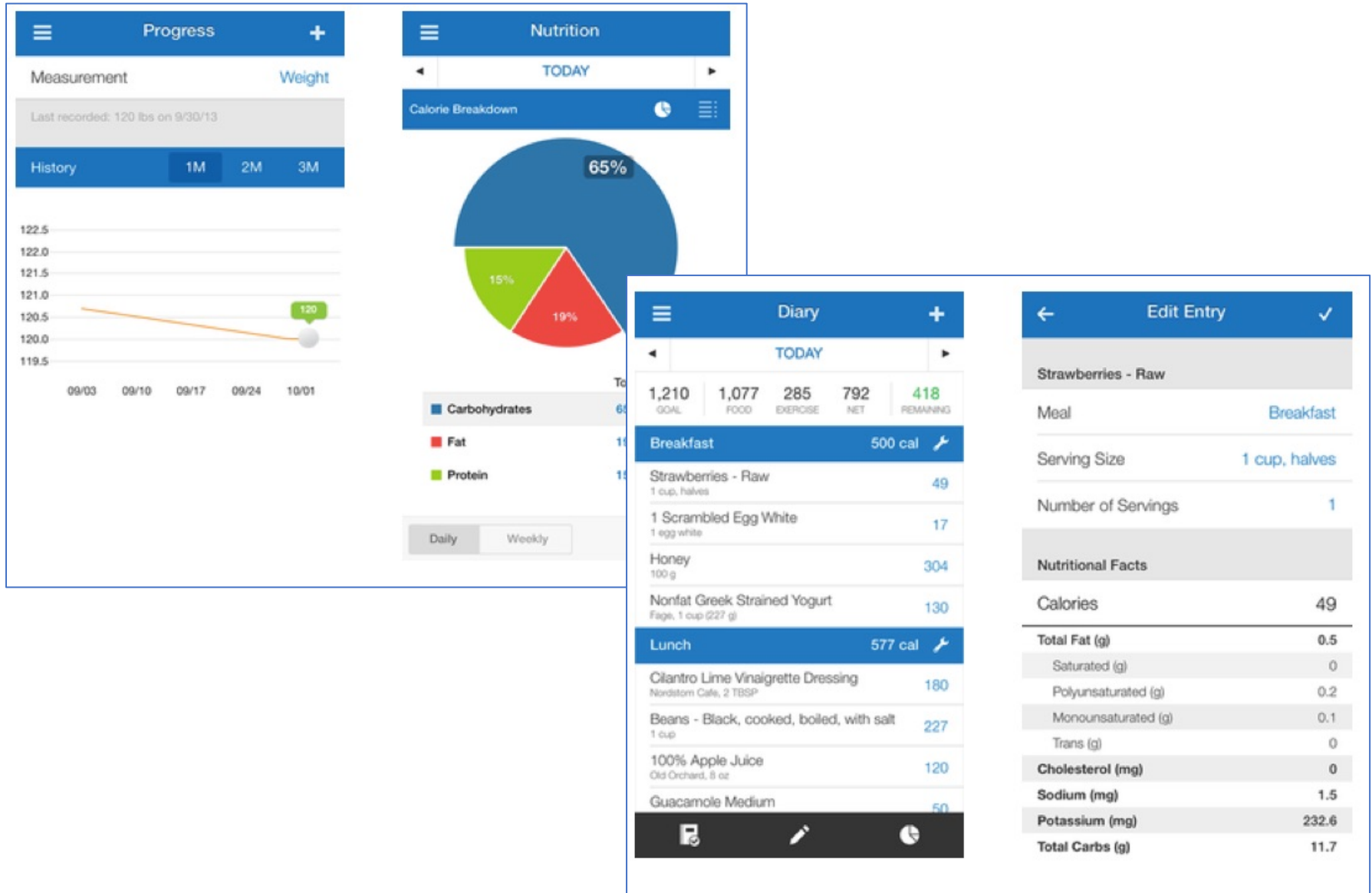
Quantity of information: Is info presented within the scope of the app, and comprehensive but concise?



Need a Step Tracker?

Fitbit works great with MyFitnessPal. Track steps taken, distance

Visual information: Is visual explanation of concepts – charts, graphs, videos – clear, logical and correct?



Credibility: Does the app come from a legitimate source?
Evidence base: Has the app been trialed or tested? (must be verified by published evidence from the scientific literature)

[Ann Intern Med.](#) 2014 Nov 18;161(10 Suppl):S5-12. doi: 10.7326/M13-3005.

Effectiveness of a smartphone application for weight loss compared with usual care in overweight primary care patients: a randomized, controlled trial.

[Laing BY](#), [Mangione CM](#), [Tseng CH](#), [Leng M](#), [Vaisberg E](#), [Mahida M](#), [Bholat M](#), [Glazier E](#), [Morisky DE](#), [Bell DS](#).

Abstract

BACKGROUND: Many smartphone applications (apps) for weight loss are available, but little is known about their effectiveness.

OBJECTIVE: To evaluate the effect of introducing primary care patients to a free smartphone app for weight loss.

DESIGN: Randomized, controlled trial. (ClinicalTrials.gov: [NCT01650337](#)).

SETTING: 2 academic primary care clinics.

PATIENTS: 212 primary care patients with body mass index of 25 kg/m² or greater.

INTERVENTION: 6 months of usual care without (n = 107) or with (n = 105) assistance in downloading the MyFitnessPal app (MyFitnessPal).

MEASUREMENTS: Weight loss at 6 months (primary outcome) and changes in systolic blood pressure and behaviors, frequency of app use, and satisfaction (secondary outcomes).

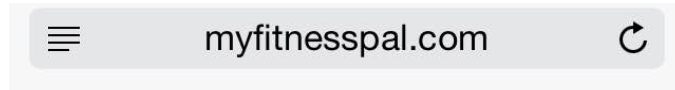
RESULTS: After 6 months, weight change was minimal, with no difference between groups (mean between-group difference, -0.30 kg [95% CI, -1.50 to 0.95 kg]; P = 0.63). Change in systolic blood pressure also did not differ between groups (mean between-group difference, -1.7 mm Hg [CI, -7.1 to 3.8 mm Hg]; P = 0.55). Compared with patients in the control group, those in the intervention group increased use of a personal calorie goal (mean between-group difference, 2.0 d/wk [CI, 1.1 to 2.9 d/wk]; P < 0.001), although other self-reported behaviors did not differ between groups. Most users reported high satisfaction with MyFitnessPal, but logins decreased sharply after the first month.

LIMITATIONS: Despite being blinded to the name of the app, 14 control group participants (13%) used MyFitnessPal. In addition, 32% of intervention group participants and 19% of control group participants were lost to follow-up at 6 months. The app was given to patients by research assistants, not by physicians.

CONCLUSION: Smartphone apps for weight loss may be useful for persons who are ready to self-monitor calories, but introducing a smartphone app is unlikely to produce substantial weight change for most patients.

PRIMARY FUNDING SOURCE: Robert Wood Johnson Foundation Clinical Scholars Program, National Institutes of Health/National Center for Advancing Translational Sciences for the UCLA Clinical and Translational Science Institute, and the Resource Centers for Minority Aging Research Center for Health Improvement of Minority Elderly under the National Institutes of Health/National Institute on Aging.

Data safeguarding and privacy



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[Privacy Policy](#)

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These Terms of Use (the "**Agreement**") constitute a legally binding agreement by and between MyFitnessPal, Inc. (hereinafter, "**MyFitnessPal**") and you ("**You**" or "**Your**") concerning Your use of MyFitnessPal's website located at <http://www.myfitnesspal.com/> (the "**Website**") and MyFitnessPal mobile phone applications (the "**Applications**") and the services available through the Website and Applications (the "**Services**"). By using the Services, You represent and warrant that You have read

myfitnesspal.com



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BY USING THE WEBSITE AND/OR APPLICATIONS, YOU REPRESENT AND WARRANT THAT YOU HAVE READ AND UNDERSTOOD, AND AGREE TO THE TERMS OF, THIS PRIVACY POLICY. IF YOU DO NOT UNDERSTAND OR DO NOT AGREE TO BE BOUND BY THIS PRIVACY POLICY, YOU MAY NOT USE THE WEBSITE AND/OR APPLICATION.

MARS checklist Subjective Quality criterion

- Would you recommend this app to people who might benefit from it?
- How many times do you think you would use this app in the next 12 months if it was relevant to you?
- Would you pay for this app?
- What is your overall star rating of this app?
 - One of the worst 
 - One of the best 

In summary ...

- There are HUNDREDS OF THOUSANDS of apps for that
- Some are great, many are not
- The same 'rules of engagement' apply to mobile apps and digital & remote programs as face-to-face approaches
- There is no 'best' app - but you can serve as 'guide on the side' and help provide additional scrutiny of existing tools



THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE & LIFE SCIENCES

Nutritional Sciences

Melanie Hingle, PhD, MPH, RDN
Associate Professor of Nutritional Sciences,
Public Health, and the Bio5 Institute



Where our lab is ...

THE UNIVERSITY OF ARIZONA
Laboratory for
Metabolic Disease
Prevention & Treatment



Where we put science to work ...



Finding Effective Technology-Based Tools for the Promotion of Healthy Lifestyles

Mike Lopez

Extension Program Specialist II

Family and Community Health

MLLopez@ag.tamu.edu

Our Goal Today



1 Explore Howdy Health website and program offerings

2 Discuss recruitment to online programs

3 Highlight practice-based program activities offered

4 Share opportunities and lessons learned



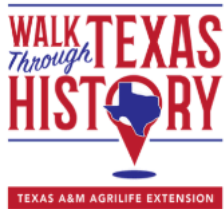
Howdy Health

HowdyHealth.tamu.edu



Howdy Health

Physical Activity Program Offerings



Implementation

Recruitment



Program Activities

Opportunities / Lessons

Impact

Implementation

Recruitment



Program Activities



Opportunities / Lessons

Impact

Implementation


Recruitment



Program Activities



Opportunities / Lessons



Impact

Implementation


Recruitment



Program Activities



Opportunities / Lessons



Impact



Thank you to our local County Extension Agents, program partners and participants
across Texas for their continued support!

“I benefitted physically by developing endurance. My canine family benefitted because they got to go walking/exploring most days! Best of all, though, was walking with my college-age son, home due to COVID-19. He joined me most days. We talked about things we'd rarely talked about before – things really going on in his life, things he values and believes in, all sorts of things. I think we both treasured our evening walks, enjoying beautiful sunsets and experiences together. I feel closer to him now than I have since he was a child.”

– WAT! Adult Program Participant

Live Smart Texas | December 10, 2020

Thank You!