# DIGGING IN

Researcher **BIAS** can creep into even quality studies. See how this **INFLUENCES** how they report their **FINDINGS.**

# Enhancing
## Practice from the Inside Out:

## The Self-Practice/
## Self-Reflection Approach

Dr. David Rosengren
*President, PRI*

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**James Bennett-Levy, PhD, developed Inside Out training to deepen practitioners' understanding of the underlying principles and intricacies of an evidence-based practice.**

**Thirty plus years ago I started my career as a trainer. The focus was Motivational Interviewing (MI). That skill set, and the field of Implementation Science, were in their infancy.** Over time, significant progress has been made in understanding factors that contribute to the adoption and maintenance of evidence-based practices in general (Bauer & Kirchner, 2020), as well as the adoption of MI in everyday practice (Schwalbe et al., 2014). However, there has been limited research on how to transition from practicing skills with general fidelity to achieving excellent and nuanced practice, which brings us to Inside Out Training.

Also known as the Self-Practice/Self-Reflection (SP/SR) approach, James Bennett-Levy, PhD, developed Inside Out training to deepen practitioners' understanding of the underlying principles and intricacies of an evidence-based practice. Bennett-Levy

Dr. James Bennett-Levy, PhD

noted as practitioners gain proficiency in the knowledge and skills of therapeutic interventions, they often seek to understand the nuances of when and why to apply specific techniques. They strive to move beyond rote interventions and work intentionally. They move from the what and the how of evidence-based practice to the why. Research supports the value of this approach in the training area (e.g., Chigwedere et al., 2021; Scott et al., 2021).

**The Personal Practice Model (PPM):**
At the core of this practice is the Personal Practice Model (PPM). According to Bennett-Levy and Finlay-Jones (2018), therapists bring two aspects of themselves into therapeutic encounters: the personal self and the professional self. While these aspects overlap, they also have distinct characteristics. Traditional training models, including deliberate practice methods that we have discussed and used at PRI, have primarily focused on the professional self and the acquisition and refinement of skills. Conversely, personal therapy tends to concentrate on the personal self without clear integration of the learnings into professional practice. The PPM aims to deepen the understanding from the

personal self and then bridge the gap to the practitioner self. For this reason, it is referred to as learning from the inside out. See Figure 1 (p.9) for an illustration of these ideas.

**The Process of SP/SR:**
SP/SR involves an experience of addressing either a personal problem or professional challenge by utilizing the con-cepts, principles, and skills of the evidence-based practice, like Prime For Life or Prime Solutions.  On a difficulty scale from 0 (no challenge) to 100 (an extreme challenge), the area of focus should be in the 30 to 70 range of challenge. This challenge is addressed through a series of exercises, typically completed within a limited peer practice relation-ship. The process then utilizes self-reflection and writing to establish a connection to the therapist self (Rosengren et al., 2024). By working on real but limited issues, practitioners experience the value of various elements of the practice from within. They are subsequently guided to con-template the impact of this experience on themselves and then consciously and intentionally reflect on how it can be utilized in their work with clients through the series of reflective questions.
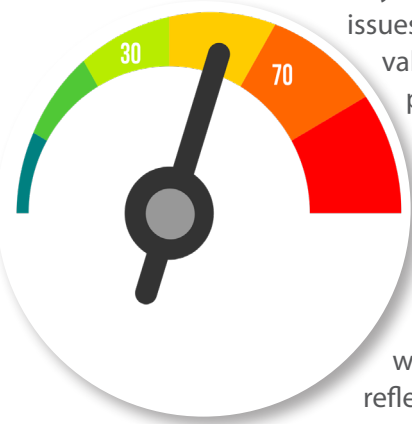
**Combining Knowledge, Skills, and Nuances:**
Typically, there is an order to the SP/SR process. Using MI as an example, participants learn the foundational knowledge of MI, such as the MI Spirit, change talk, and sustain talk, and practice skills prior to commencing the SP/SR process. This may involve attending a 2-day workshop, taking an online course, or utilizing MI books or workbooks (e.g., Frey & Hall, 2021; Rosengren, 2017).  There are a variety of ways in which people can successfully gain this initial knowledge.

> **❝** Once this process is complete, there is a **need to maintain…**

Once this process is complete, there is a need to maintain and continue to refine these skills. Supervision and coaching are methods, as is coding. Use of AI methods, including Chatbots, is gaining additional attention. Learners might also engage in deliberate practice to enhance skill proficiency (e.g., Manuel et al., 2022). This process typically involves identifying an area of conscious incompetence, practicing in this area with great focus and attention to detail, reviewing performance immediately including the use of coaching/su-

pervision, making refinements to technique, and practicing again until the skill can be done automatically.  The aim is to develop unconscious competence.  That is, we deploy these skills easily and without conscious thought.

> **❝** There is then a context for participants to **understand and integrate** the individual elements.

Once the knowledge base and at least basic skills are in place, the participant is ready to engage in Inside Out learn-ing.  What sets SP/SR apart is its focus on understanding how the integration of these skills goes beyond the individual instruments to seeing, feeling, and experiencing the whole symphony. There is then a context for participants to un-derstand and integrate the individual elements. They might explore the significance of missed reflections, the power of affirmations to enhance one's sense of capability, and the value of silence following a reflection through person-al experience. The self-reflection on this experience helps practitioners to understand the effect of MI practice more deeply. These nuances enable practitioners to determine, for example, when to affirm, reflect, or to remain silent in their practice. The aim is for practitioners to deepen their understanding, enhance their skill usage, adapt it effectively to their unique circumstances, and improve client outcomes. Figure 1 (p.9) provides an overview of PPM in MI.

**Be Someone Good To Talk To :**
The premise of this training series was straightforward.  Could the concepts of Inside Out training be applied in a new setting, where the requisite knowledge and skills have not been the focus?  We designed training that was regular and did not require regular attendance – where a meditation could be used to convey the mindset and the heart set of an intervention and a demonstration would be done to provide a live model, but there would not be a specific attempt to train skills. Instead, participants would be invited to have an experience of the skills as a recipient. For example, What does it feel like when someone listens without agenda? Par-ticipants are then asked to reflect on their experience as the "client"(i.e., the personal self) and then use those insights to cross the reflective bridge to think and write about how they can apply these insights to their work with clients (i.e., the practitioner self). Each 90-minute continuing education session (CES) focuses on a different topic, and we have 12 topics rotated over the course of a year.

# the prime bookcase

Michelle Stephen Seigel
*Director of Program Development & Training, PRI*

**"**

**The participant workbooks are the catalyst for engaging our participants. Here's a guide for using them effectively.**

*The "full" Prime For Life Participant Workbook.* This workbook covers **ALL** of our longer Prime For Life Computer Application (App) syllabus options, from 10-20 hours of content. [Click to view a review copy of this workbook.](#)

*The "Exploring" Participant Workbook* is designed for use with our Prime For Life App shorter syllabus options the 4.5- and 8-hour options. [Click to view a review copy of this workbook.](#)
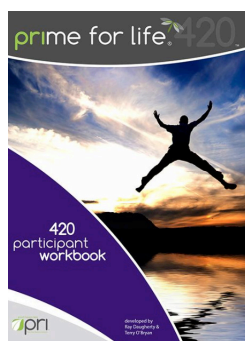
*The Prime For Life 420 Participant Workbook* is designed for the Prime For Life App 420 syllabus selection. There is one workbook option for the 420 syllabus, and it works for the 8 hour option and the longer options up to 20 hours. [Click to view a review copy of this workbook.](#)

## Role of the Workbook

Once you have selected the workbook most suitable for your participants and area of focus, introduce it when you begin the group. I usually say something like this…

"We are going to begin on page 7 in our Workbooks. It might seem strange to start part way into the workbook—so let's talk about the role of your workbook in our group time together. Page 3 is a legend to the workbook with some information about the authors and the institute, along with additional information accessed with QR codes. We will find QR codes throughout the workbook. They are provided so you can watch the animations or videos again or share them with others. Participants requested this feature, and we hope you find it useful. We will not cover every page of the workbook during our group time. Some of the pages summarize content and other pages feature activities and questions we will complete together. This is YOUR workbook and what and how much you share of it in group is up to you. If you are a book learner and like to follow along, just know much of what I will be sharing will be summarized, so the flow of the workbook and what we see in the App I am using might not match. When we see a page number on the App it reminds me we will be turning to an activity in the Workbook. You can help me remember that as we go. With that in mind, let's turn to page 7 and get started exploring what matters most to each of us."

After the Introduction page and Table of Contents we feature information on page 6—this is a "prime" example of why we don't teach from the Participant Workbook. Page 6 is a summary of content we will cover later and if we teach it before the Values activity we are moving out of sequence with content, interrupting our Finish Line Focus, and risking confusion and unnecessary repetition. So just remember—the only time we engage the workbook is when we are prompted by the App scenes.

> **So just remember—the only time we engage the workbook is when we are prompted by the App scenes.**

## Workbook Features

- **QR Codes** are built into the Participant Workbook and allow participants to view animations or videos from Prime For Life after the group. QR codes in the Participant Workbook originated from a request from a Prime For Life group participant who wanted to share program content from videos with family members. Other QR codes, like the one currently on Scene 2 of the Prime For Life Computer Application, are used to collect learner data. When the evaluation is complete, these scenes will be removed.



View the Treasures Lost video.
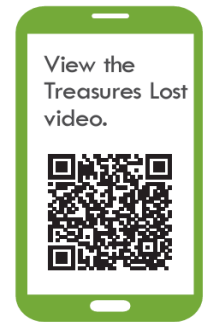
- **Reflection Questions** are opportunities to hear change talk. We place them by design in areas where we are more likely to hear language oriented toward motivation and change. They are called reflection questions because they are optimal places for Instructors to reinforce motivation by responding to client offerings with a reflection. When using the Instructor Workbook, you will find sample reflections to use as a kick starter to conversations that follow. When considering program fidelity, the use of the workbook is two-fold: 1) Use when indicated and 2) Solicit learner feedback.



> **What IS a reflection? Reflections are statements that convey understanding of what the participant is saying or feeling, without judging, interpreting, or advising.**

# DIGGING IN
## Can research be
# TRUSTED?

**Mark Nason**
*Research Analyst, PRI*

**"**

**Even with high quality research, why don't we take the authors' conclusions about their findings at face value?**

**Increasingly, people distrust research. There are good reasons for this distrust. As highlighted in a recent Medscape editorial[1], researchers and publishers are too often more concerned with quantity of research articles than with quality.** In addition, there has been a large increase in online-only journals and some of these newer journals have no or weak peer review processes. Nonetheless, quality research is still very prevalent. So, the more useful questions are:

- **Which research can be trusted?**
- **How do we interpret the findings of quality research?**

Thoroughly answering these two questions would be too much for one article. This article will focus on one of the important aspects of the second question: Even with high quality research, why don't we take the authors' conclusions about their findings at face value? More specifically, we will look at evidence of bias in how researchers in four studies of fair to good quality report their conclusions. The first two demonstrate significant evidence of potential researcher bias and the last two show more subtle evidence.

## ARTICLE #1

**State cannabis legalization and psychosis-related health care utilization.[2]**

In the "Conclusions and Relevance" section of the abstract the authors state, "In this retrospective cohort study … state medical and recreational cannabis policies were not associated with a statistically significant increase in rates of psychosis-related health outcomes."

**A closer look…**
The authors' statements in the "Results" section of the abstract suggest this conclusion does not adequately portray their findings.

They state:

"…compared with no legalization policy, states with legalization policies experienced no statistically significant increase in rates of psychosis-related diagnoses … In exploratory secondary analyses, rates of psychosis-related diagnoses increased significantly among men, people aged 55 to 64 years, and Asian beneficiaries in states with recreational policies compared with no policy."

In addition, more statistically significant findings are presented in supplementary files. Increases in psychosis-related diagnoses were also found among…

- Ages 35-54 (for men and women combined) in states with legalized recreational THC [eTable 7] and just in men when women were separated out [eTable 8]

- Women ages 65 and older in states with recreational THC outlets [eTable 8]

- Hispanics in states with recreational THC outlets [eTable 9]

- Whites in states with recreational THC outlets [eTable 9]

**Our conclusion:**
This study suggests that a large proportion of the population showed increases in psychosis-related health outcomes in states where recreational THC was legalized, particularly after retail sales were introduced. It is unclear what proportion of these outcomes was short term and what proportion was long term.

# ARTICLE #2

**Risk thresholds for alcohol consumption: Combined analysis of individual-participant data for 599, 912 current drinkers in 83 prospective studies**.[3] *[According to Google Scholar, this article has been cited by 1,134 journal articles as of March 24, 2024.]*

Quote from the authors: "The chief implication of this study for public policy is to support reductions of alcohol consumption limits in existing guidelines, suggesting that the threshold for lowest risk for all-cause mortality is about 100 g per week…" (Wood et al., 2018; p. 1514)

[Note: 100 grams of pure alcohol equals about 7 standard US drinks based on 14 grams (0.6 fluid ounces) per drink.]

**A closer look…**
Frequency of drinking was not considered in the data supporting this finding, and "…when they examined pattern of use, there was no evidence of increased risk at 14 or fewer drinks per week for more frequent drinkers" (Nason, 2020; p. 826).[4] In fact, there was evidence of decreased risk for premature mortality, as shown in eFigure 17 of their peer reviewed Supplemental Appendix. The choice to place this data in the extensive online appendix likely greatly limited the number of people who saw it, particularly since this data was only mentioned briefly in the results section of the journal article and not mentioned at all in the discussion section. While the limitations of the data in eFigure 17 mentioned by the authors certainly caution against concluding this level of consumption is necessarily beneficial, this data strongly supports that consuming up to 14 standard drinks (defined as 0.6 fluid ounces each) per week—when spread out over the week—does not likely increase risk for premature mortality among men or women. The potential value of this data seems to warrant much more attention than it was given by the authors, as it adds a significant caveat—the importance of pattern of

consumption when examining the relationship between a given level of alcohol consumption and the risk for premature mortality—to one of their main conclusions.

**Our conclusion:**
This study suggests that risk for a shorter lifespan seems to increase above 7 drinks per week when number of drinks per occasion is not considered and above 14 drinks per week among more frequent drinkers (lower quantity per occasion). Among people drinking the same total amount per week, having more drinks per occasion seems to significantly increase the risk for living a shorter life.

## Daily drinking is associated with increased mortality.[5]

In this case, the article title itself is a misleading conclusion. Additionally, in the "Conclusions" section of the abstract, authors state, "The minimum risk of low-level drinking frequency for all-cause mortality appears to be approximately 3 occasions weekly.… Daily drinking, even at low levels, is detrimental to one's health."

**A closer look:**
In the "Results" section of the abstract, the authors state:

"The minimum risk drinking frequency among those who drink 1 to 2 drinks per occasion was found to be 3.2 times weekly in the NHIS data, based on a continuous measure of drinking frequency, and 2 to 3 times weekly in the VA data. Relative to these individuals with minimum risk, individuals who drink 7 times weekly had an adjusted hazard ratio (HR) of all-cause mortality of 1.23 ($p < 0.0001$) in the NHIS data, and individuals who drink 4 to 7 times weekly in the VA data also had an adjusted HR of 1.23 ($p = 0.01$). "

In contrast to the authors' statement, a conclusion equally consistent with the results is that lifetime abstinence is detrimental to one's health, as compared to low-level drinking 3 days per week. To be clear, this study offers some indications that frequent low-level consumption might not increase longevity. Nonetheless, the strength of these conclusions is weakened by limitations of this study, such as only asking about typical number of drinks, only surveying once, and not providing a definition of a standard drink to those taking the survey.

**Our conclusion:**
This study suggests that consuming 1-2 drinks on each of 3 days per week seems to be associated with a longer lifespan than either lifetime abstinence or daily drinking. The evidence in this study is not strong enough to support a recommendation for anyone to start to drink in order to live longer.

## Association between daily alcohol intake and risk of all-cause mortality: A systematic review and meta-analyses.[6]

Under "Key Points" on page 1. "**Meaning** Low-volume alcohol drinking was not associated with protection against death from all causes."

**A closer look…**
While technically accurate, by suggesting a more definitive conclusion than the results show, the above statement is somewhat misleading. In the unadjusted and partially adjusted analyses presented in their Table 2, the researchers indicate that compared to lifetime nondrinkers, people who consumed a "low volume," defined as an average of 1.3 to <25 grams of alcohol (0.1 to 1.7 standard drinks) per day had a statistically significant 14 to 15% lower risk of dying during the course of the study. In contrast, the fully adjusted analyses showed only a statistical trend (p=0.08) for a 7% lower risk of dying. Having such a wide range of alcohol consumption in this category complicates the interpretation of the findings. Based on other research, it seems unlikely that consuming much less than half a drink per day would have much impact on longevity in either direction for most people. Nor is there evidence that people actually consume less than half a drink on a daily basis. More likely, the low volume category includes people who had about one drink per week up to about 12 standard drinks per week.

In addition, as the authors point out in the Discussion section, few of the studies included in this meta-analysis accounted for the effects of people with the same average daily consumption having very different patterns of consumption. For example, people who consume alcohol only on Friday and Saturday nights and have seven drinks each of these nights would have the same average of two drinks per day as people who consume two drinks every day of the week. However, as they point out, research indicates the risks for these diverse patterns of consumption are quite different. The authors' awareness of this and other limitations does not seem to have tempered their conclusion. This suggests their bias affected their interpretation of their findings.

The authors also compared the risk of low-level drinking to that of occasional drinkers. These analyses did not show evidence of any protective effect on longevity. They conducted these additional analyses because there are limitations to using people who report being lifelong non-drinkers as the reference group. However, other researchers have pointed out that there are limitations with using either of these groups as the comparison/reference group.[7] Failure to acknowledge these limitations also suggests researcher bias.

**Our conclusion:**
This study suggests that consuming on average between about one drink per week and two drinks per day might not be associated with living longer, and appears, overall, to not shorten people's lives (in the language of Prime For Life, this level of drinking appears to be low risk).

**Overall Concluding Comments**
It is difficult, if not impossible, for researchers to avoid having some biases. The key task is to be aware of them and do one's best to put safeguards in place to minimize their potential impact. Members of the Research Team at PRI do our best to keep our own biases in check when reviewing research for consideration for use in our programs and when we occasionally serve as peer reviewers for various journals. The real danger comes when researchers either are unaware of their biases or try to hide them.

Perhaps most unfortunate is when particular biases become widespread. This sometimes happens to the point that other researchers do not realize that these biases are not only affecting how they analyze their data and interpret their findings, but what they choose to study and many aspects of their study design.

The good news is that careful examination of a research article, along with knowledge of other studies, can help identify when biases are present and the degree to which they might affect the overall quality of the study. Even with high quality studies, the research team at PRI does not take a researchers' interpretation of their findings at face value. Hopefully, the examples shared in this article help demonstrate why.

We have not done a formal evaluation, but review of the data points we have received is fascinating. Participants vote with their feet. For some folks this is not a good fit, and they don't come back. For many, it is a powerful experience, and they keep coming back. The survey reviews and comments are overwhelmingly positive, which matches what people say to us in the session. It has also led to a notable increase in requests for specific skill training in the areas we mention in the training. That is, the experience seems to whet the appetite for more traditional skill building.

As trainers, Michelle Stephen Seigel and myself find this a relaxed and enjoyable time spent together with you. We demonstrated this approach to an international group of MI trainers in Copenhagen last year to deep and excited interest. Our initial conclusion is a deeper understanding of the concepts and skills may allow learners to draw richer value from the experience, but our experience with PFL instructors and PS counselors is that learners new to an area can draw value from this Inside Out approach. Of course, that is a conclusion that awaits empirical testing.



*Figure 1: The Personal Practice Model (PPM) for MI. Key elements are: 2 "selves" (large overlapping circles) - personal self and practitioner self; 6 outcomes of personal practice (circles) - personal development and wellbeing, self-aware-ness, interpersonal beliefs/attitudes/skills, self-reflective skills, a way of being, and conceptual/technical skills; and the 3 elements of the reflective process (personal self-reflection, practitioner self-reflection, reflective bridge). Adapted from "The role of personal practice in therapist skill development: A model to guide therapists, educators, supervisors and researchers," by J. Bennett-Levy and A. Finlay-Jones, 2018, Cognitive Behaviour Therapy, 47(3), p. 186 (https://doi.org/10.1080/16506073.2018.1434678). Copyright 2018 by Routledge.*

**References:**

**Bauer, M. S., & Kirchner, J.** (2020). Implementation science: What is it and why should I care? *Psychiatry research*, 283, 112376. DOI: 10.1016/j.psychres.2019.04.025

**Bennett-Levy, J., & Finlay-Jones, A.** (2018). The role of personal practice in therapist skill development: A model to guide therapists, educators, supervisors, and researchers. *Cognitive Behaviour Therapy,* 47(3), 185-205. DOI: 10.1080/16506073.2018.1434678.

**Bennett-Levy, J. & Haarhoff, B.** (2019). Why therapists need to take a good look at themselves: Self-practice/self-reflection as an integrative training strategy for evidence-based practices. In S. Dimidjian (Ed.), *Evidence-based practice in action* (pp. 380-394). New York, NY: Guilford.

**Bennett-Levy, J., & Lee, N.** (2014). Self-practice and self-reflection in cognitive behaviour therapy training: What factors influence trainees' engagement and experience of benefit? Behavioural and Cognitive *Psychotherapy,* 42, 48–64. doi:10.1017/S1352465812000781

**Bennett-Levy, J., Thwaites, R., Haarhoff, B., & Perry, H.** (2015). *Experiencing CBT from the inside out: A self-practice/self-reflection workbook for therapists*. Guilford Publications.

**Chigwedere, C., Bennett-Levy, J., Fitzmaurice, B., & Donohoe, G.** (2021). Personal practice in counselling and CBT trainees: the-self-perceived impact of personal therapy and self-practice/self-reflection on personal and professional development. Cognitive Behaviour Therapy, 50(5), 422-438.

**Farrell, J. M., & Shaw, I. A.** (2018). *Experiencing schema therapy from the inside out: A self-practice/self-reflection workbook for therapists.* Guilford Publications.

**Frey, J., & Hall, A.** (2021). Motivational Interviewing for Mental Health Clinicians. A Toolkit for Skills Enhancement. Eau Claire, WI: PESI Press. Kolts, R. L., Bell, T., Bennett-Levy, J., & Irons, C. (2018). *Experiencing compassion-focused therapy from the inside out: A self-practice/self-reflection workbook for therapists*. Guilford Publications.

**Manuel, J.K., Ernst, D., Vaz, A., & Rousmaniere, T. (**2022). Deliberate Practice in Motivational Interviewing.  Washington, DC: American Psychological Association.

**Rosengren, D.B.** (2017).  Building Motivational Interviewing Skills: A Practitioner Workbook (2nd Edition).  New York: Guilford Press. Rosengren, D.B., Johnston, L., & Hilton, C. (2024).  *Motivational Interviewing from the Inside Out.*  [Manuscript in preparation]. New York: Guilford Press.

**Scott, J., Yap, K., Bunch, K., Haarhoff, B., Perry, H., & Bennett-Levy, J.** (2021). Should personal practice be part of cognitive behaviour therapy training? Results from two self-practice/self-reflection cohort control pilot studies. *Clinical Psychology & Psychotherapy,* 28(1), 150-158.

**Tirch, D., Silberstein-Tirch, L. R., Brock, M. J., & Wright, M. J.** (2019). *Experiencing ACT from the inside out: A self-practice/self-reflection workbook for therapists*. Guilford Publications.

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*from The Prime Bookcase*

- ***Something to Consider Questions*** are optional processing questions related to content and often located at the end of a key takeaway or summary. One of my favorite examples is located on page 13 of the Instructor Workbook. Depending on the syllabus used and time allowed, these questions might be used as "homework" or as an opening question after a break in Prime For Life.

- ***While we are at it, "Any Questions?"*** It's tempting to check in with our group members by asking "Does anyone have any questions?". This closed question might solicit a "no" response or it might take us down a rabbit hole and invite drift. Participants might ask "Yeah, have you ever smoked marijuana? Do you think it should be legal? What's for lunch? Can we take a break?". If you are feeling the urge to ask a question, two things to consider might be: 1) Wait until you get to a built-in "reflection question" where change talk is more likely to be "in the room" or 2) Ask an open question like "Who has questions about the role of family history?". I tend to lean on the first option. Be confident if learners have questions; they will ask you if it's important.

## Workbook Use Tips

- Teach from the App, not the Participant Workbook. This is especially true in the Exploring and Reflecting Units.

- In the Protecting Unit we are "in" the workbook more, and the Instructor role changes from sharing content to putting the content into action through facilitation of activities — offering direction to begin an activity, debriefing, and summarizing, then repeating that process.

- Add notes to your workbook pages with activities so you can go mobile (move around the room) and not be dependent on the App or E-manual when facilitating, especially in the Protecting Unit.

- Download and print an Instructor Workbook from the Dashboard (there are PDF copies of the full workbook and just the activity pages). This resource has guidance from the Prime For Life E-manual already formatted into the activity pages. [Click to view the Instructor Workbook PDF.](#)

**References:**

1. **Peer Review and Scientific Publishing Are Faltering** - *Medscape* - Mar 07, 2024. https://www.medscape.com/viewarticle/1000328?ecd=WNL_trdalrt_pos1_240309_etid6364400&uac=31578AG&impID=6364400

2. **Elser, H., Humphreys, K., Kiang, M. V., Mehta, S., Yoon, J. H., Faustman, W. O., & Matthay, E. C.** (2023). State cannabis legalization and psychosis-related health care utilization. *JAMA Network Open*, 6(1), e2252689-e2252689.

3. **Wood, A. M., Kaptoge, S., Butterworth, A. S., Willeit, P., Warnakula, S., Bolton, T., ... & Bell, S.** (2018). Risk thresholds for alcohol consumption: Combined analysis of individual-participant data for 599, 912 current drinkers in 83 prospective studies. *The Lancet*, 391(10129), 1513-1523

4. **Nason, M. E.** (2020). Refinement of comprehensive low-risk drinking guidelines needs to be based on research that examines the full complexity of drinking choices: A comment on Sherk et al.(2020). J*ournal of Studies on Alcohol and Drugs*, 81(6), 826-827.

5. **Hartz, S. M., Oehlert, M., Horton, A. C., Grucza, R. A., Fisher, S. L., Culverhouse, R. C., ... & Bierut, L. J.** (2018). Daily drinking is associated with increased mortality. *Alcoholism: Clinical and Experimental Research*, 42(11), 2246-2255.

6. **Zhao, J., Stockwell, T., Naimi, T., Churchill, S., Clay, J., & Sherk, A.** (2023). Association between daily alcohol intake and risk of all-cause mortality: A systematic review and meta-analyses. *JAMA Network Open*, 6(3), e236185-e236185.

7. **Sarich, P., Gao, S., Zhu, Y., Canfell, K., & Weber, M. F.** (2024). The association between alcohol consumption and all-cause mortality: An umbrella review of systematic reviews using lifetime abstainers or low-volume drinkers as a reference group. *Addiction.*

# In Partnership

I am an active duty Navy Drug and Alcohol Counselor and work within the Navy's Substance Abuse Rehabilitation Program. The command I am currently at did not offer Prime for Life because no one was a certified instructor. I am the only counselor for this area and have a full patient load.

The **ENTIRE** Prime for Life team from the support office, Zoom instructors, directors, and everyone in between have been **EXTREMELY** helpful in assisting me with technical issues, working with time lines, my own personal schedule (as it is far from consistent), as well as their ability in answering any and all questions that I have has again been **AMAZING**!

I have been through extensive drug and alcohol related courses and schooling and appreciate the direct and well outlined material that has been developed and put out by PFL especially the directions for instructors to be able to pass the information to others and be able to continue to assist those that would benefit greatly from this material and education…

Thank you again for all of your assistance and I am looking forward to instructing and sharing this course with other Sailors and service members!

**- Drew, U.S. Navy Prime For Life Instructor**
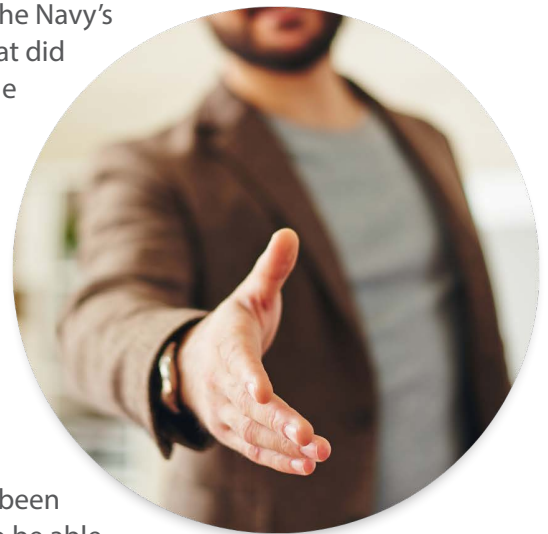
# Low Risk is not ... No Risk

**Mark Nason**
*Research Analyst, PRI*

> **PRI has set the guidelines to be below the point at which people are significantly more likely to experience serious impairment problems and/or have a reduced length of life due to negative effects on health.**

**In Prime For Life® (PFL) we teach that low-risk choices are not "no-risk" choices.** One reason for this statement is there is evidence of increased risk for some cancers when drinking within the low-risk range. It has been estimated that in 2020, about 4% of all new cases of cancer worldwide were due to alcohol consumption and of these alcohol-related cancers, about 14% (about 103,100 cases; approximately 0.6 % of all cancers) were due to consumption of an average of less than 1.5 drinks per day (Rumgay et al., 2021). In North America, the estimates were about 16% of alcohol-related cancers (about 9,500 cases; about 0.7% of all cancers) were due to consumption of an average of less than 1.5 drinks per day, nearly 42% (about 24,800 cases; about 1.7% of all cancers) were due to consumption of an average of between about 1.5 and 4.3 drinks per day, and about 42% (about 25,300 cases; about 1.7% of all cancers) were due to consumption of an average of more than 4.3 drinks per day.

In particular, there is a sizable amount of research indicating an increased risk of breast cancer for women who averaged one to two drinks per day (DOC 67), and some evidence of increased risk at even lower levels of consumption (DOC 68). There is also some evidence to suggest men and women averaging between one and two drinks per day might have increased risk for colorectal cancer (DOC 69) and cancer of the mouth and throat[1]. Except for the risk of cancer of the mouth and throat among drinkers who also smoke tobacco (DOC 70), this increase in risk is typically small. Nevertheless, it is significant enough that PRI recommends people consider this risk when deciding whether to adjust the guidelines downward for individual differences, particularly if they have other risk factors for these cancers.

Given these findings, it is reasonable to wonder why PRI does not lower the alcohol guidelines for everyone or at least for all women. Below are two central reasons why PRI has not made automatic reductions in the guidelines.

1. **Most people who consume one to two drinks per day do not experience serious problems, and many live healthier and slightly longer lives.**

Low-risk guidelines can be based on a variety of criteria. For example, guidelines could be based on preventing all problems for all people that could occur from drinking. From this perspective, many people would understandably conclude abstinence would be the only low-risk choice. PRI, however, has set the guidelines to be below the point at which people are significantly more likely to experience serious

impairment problems and/or have a reduced length of life due to negative effects on health. From this perspective, research supports the 0-1-2-3 alcohol guidelines. That is, despite some evidence for increased risk for some cancers and some other health problems among people consuming one to two drinks per day, overall risk for premature death does not seem to increase for most people at this level of consumption (DOC 188). In fact, as we share in our programs, research suggests women and men consuming one to two drinks per day tend to live a little longer on average than men and women who seldom or never drink. It is possible that the potential benefits for some adults might statistically outweigh the apparent increased risk for others. This might be partly due to more women dying each year from heart disease than from all cancers combined (Heron, 2021), and low-risk drinking has been shown to decrease risk for common forms of heart disease among women.[2] However, since this research has limitations, it does not provide proof that low-level drinking has potential health benefits. The longer lifespan experienced by frequent low-level drinkers could be due to factors other than their drinking.[3]

Nevertheless, despite some recent strong claims to the contrary, there is still significant evidence for potential health benefits for some people. For a detailed review, see "Can drinking alcohol be beneficial to some people?" under "Prime For Life® Literature Reviews" in the "Instructor Resources" section of the Dashboard at www.primeforlife.org.

Setting aside the ongoing controversy about potential benefits to low-level drinking, the point remains that the bulk of the research does not show increased risk for dying prematurely from all causes combined until above two drinks per day for both women and men. And there is a second reason we do not make automatic reductions in the guidelines.

2. **There are inconsistencies and major limitations in research on the risk for alcohol-related cancers at low levels of consumption (these will be illustrated mostly from research on breast cancer).**

There is compelling evidence that drinking alcohol can increase risk for breast cancer in women. Nevertheless, the quantity, pattern, and manner of drinking which leads to this increased risk is less well-documented. It is commonly stated in meta-analyses and reviews of the literature that breast cancer risk increases at an average of one drink per day.[4] Additionally, several studies indicate about a 5-10% increase in breast cancer risk for women averaging approximately one drink per day and about a 20-30% increase in risk for women averaging approximately two drinks per day.[5] However, a few studies show a decrease in breast cancer risk among women consuming about one to two drinks per day and many studies do not show increased risk until women average more than

two drinks per day.[6]

A major limitation of the research suggesting breast cancer risk is increased by drinking within the low-risk range is these studies almost exclusively used averaged daily consumption.[7] This could be problematic because people who have dramatically different drinking patterns can average the same number of drinks per day. For example, a person consuming 14 drinks on Friday night and none the rest of the week, another person consuming seven drinks on Friday night and seven drinks Saturday night and none the rest of the week, and a third person who consumes two drinks each day of the week would all have the same average of two drinks per day over a week's time. Yet, the risk for cancer could be different for each of them due to their different drinking patterns. This averaging can lead to understating the risk for those making high-risk choices a few days per week while also potentially overstating the risk for those drinking within the low-risk range frequently.

Researchers typically rely on averaged daily drinking rather than examining the risks among people who drink daily or nearly daily largely because few people drink this often.[8] For instance, PRI's analyses of data from a 2001-2002 survey (National Institute on Alcohol Abuse and Alcoholism) of a nationally representative sample of 43,093 U.S. adults found that, among female past-year drinkers ages 35-54 (the baseline age of women commonly in cancer studies), only about 8% reported drinking 5-7 days per week, about 17% drank 2-4 times per week, 11% drank once per week, and about 64% drank less than once per week. Among those in this age group whose usual consumption averaged approximately 2 drinks per day, about 40% reported they consumed 4 or more drinks on at least 1 day per week and another 9% did so at least once per month. These results suggest it is likely a large percentage of the women in U. S. cancer studies who averaged two drinks per day exceeded the low-risk guidelines on a regular basis.

According to a 2010 report (European Commission), daily and nearly daily drinking is not the norm in the European Union (EU) either. In the EU, about 23% of those who drank in the prior month reported drinking as often as four days per week. The EU countries with the highest rate who reported drinking on 4 or more days per week were Portugal and Italy—53% and 38%, respectively. In a major cancer study, Sieri et al. (2002) collected data in 10 EU countries. In most of the EU centers where data were collected, men and women had a considerably higher averaged daily alcohol consumption on weekends than they did on weekdays. Together, these results suggest, like U.S. cancer studies, research conducted in the EU which examined cancer risk associated with averaged daily consumption of one to two drinks likely included significant percentages of women who often consumed more than two

drinks per drinking occasion.

Perhaps the strongest evidence supporting the importance of pattern of consumption, as opposed to averaged consumption, can be seen in studies looking at risk for ischemic heart disease (IHD), overall mortality risk, and mortality risk from all cancers combined. In a meta-analysis of several studies, Roerecke and Rehm (2014) found moderate drinkers with heavy drinking episodes were 75% more likely to develop IHD compared to moderate drinkers who did not have occasions of heavy drinking. Similarly, when looking at alcohol mortality from all causes combined, Tolstrup et al. (2004) and Jani et al. (2021) found greater mortality risk for less frequent consumption than for more frequent consumption among women drinking, on average, the same total amount of alcohol per week.

In addition to finding that pattern of drinking affected risk for mortality from all causes combined, Ma et al. (2021) found it affected risk for mortality from all cancers combined. They excluded those who had reduced their drinking due to illness or doctor's advice and analyzed data from 316,627 drinkers (161,255 women), aged 37 to 73 years, followed for 9 years. They found that among women who drank at least three days per week and drank with meals, there was not a statistically significant increased risk for cancer mortality at any level of drinking. There was, however, a non-statistically significant 20% increase in risk above an average of three drinks per day. In contrast, among women who drank on fewer than 3 days per week and/or drank outside of meals (sometimes or always), there was a statistically significant 50% increase in cancer mortality risk beginning somewhere above an average of 2.5 drinks per day. In addition, controlling for weekly alcohol intake and other variables, women who consumed alcohol on 3 or more days per week and consistently ate when drinking had a statistically significant 14% lower risk for dying from all causes combined and a statistically significant 12% lower risk for dying from all cancers combined compared to women drinking less often and/or not consistently eating when drinking. Nearly identical results were found for men. These data suggest increased risk for cancer mortality is linked to pattern and manner of drinking and might be largely confined to people who exceed one or more parts of the low-risk guidelines.

Studies which have examined how pattern of drinking affects risk for breast cancer specifically have also generally found that women drinking at levels consistently within the low-risk guidelines usually did not have increased risk, but those who sometimes exceeded the guidelines had increased risk. For example, Lash and Aschengrau (2000) did not find a statistically significant increase in risk for women whose usual consumption averaged 1-2 drinks per day, yet did find a statistically significant elevated risk of 160% for women

who reported they had a period of at least six months during which they drank more than usual. Kinney et al. (2000) found that women who averaged one or more drinks per day, yet sometimes binged, had an elevated (though non-statistically significant) risk for breast cancer. However, women drinking at that level who did not binge had no evidence of increased risk (odds ratios of 1.5 and 0.8, respectively).

A study which controlled for many confounding factors (Sánchez-Bayona et al., 2020) examined breast cancer risk among women with a mean age of 34 followed for about 12 years. This Mediterranean study found that among women consuming the same average amount of alcohol, women who exceeded five drinks in a single day had a two times greater risk for confirmed cases of premenopausal breast cancer than women who did not. [Given the relatively young age of the sample, the study was not able to provide a reliable estimate of risk for postmenopausal breast cancer.] Similarly, when examining pattern of drinking and risk for breast cancer among women in Australia, Sarich et al. (2021) found marginal evidence (p=0.049) of higher risk of breast cancer for women drinking 14 or more drinks per week if the drinks were consumed on 1-3 days per week than if they were spread over 4-7 days per week. Both studies suggest breast cancer risk was greater for women having more drinks per drinking day even at similar levels of total weekly consumption.

The most detailed looks at drinking pattern and breast cancer risk were by Mørch et al. (2009) and White et al. (2017). In the 2009 study, a statistically significant increased risk for breast cancer was found among women consuming more than 18 standard drinks per week. When controlling for total amount consumed during weekdays and looking at risk based on the amounts consumed on the last weekday, compared to those who had one drink, those who exceeded 3 drinks showed increased risk (55% for 4-5 drinks on the last weekday). In addition, they found that compared to women who had 1-3 drinks on the weekend (Friday through Sunday), women who had a total of 10-15 drinks had a statistically significant increased risk of 49% and those who had a total of 16-21 drinks on the weekend had a statistically significant increased risk of 151%. In the 2017 study, women with a sister diagnosed with breast cancer were asked about their lifetime alcohol consumption. They were classified into three categories—low-level (averaged 0 to 59 drinks per year), moderate (averaged 60 to 229 drinks per year), or heavy drinkers (averaged 230 or more drinks per year). Compared to low-level drinkers, moderate and heavy drinkers who reported they had not consumed more than 3 drinks on any one occasion in their lifetime did not show increased risk for breast cancer, while moderate and heavy drinkers who reported some incidences of consuming 3 or more drinks had statistically significant increased risk for breast cancer (25% and 32% greater risk, respectively). Thus, these two studies also suggest that among women drinking

at similar levels during the week, sometimes consuming larger peak amounts increased breast cancer risk.

In contrast, Chen et al. (2011) and found an 11% increased risk at an average daily consumption of about one half of a drink and a 22% increased risk at 1-2 drinks, and only found marginal evidence of increased risk by maximum number of drinks in a day. In addition, they did not find a statistically significant association between frequency of drinking and breast cancer risk.

Using largely the same sample of nurses as Chen (and a separate study of male health professionals), Cao et al. (2015) found similar small increases in risk at low-level average daily consumption for breast cancer and for all alcohol-related cancers combined and total cancer risk among women. Due to the larger number of cases of all cancers combined and for all alcohol-related cancers combined, they were able to conduct additional analyses that had limited statistical power when applied solely to breast cancer cases. For example, they found that for total cancer as well as for all alcohol-related cancers combined, risk seemed to increase at lower average daily consumption of liquor than of either beer or wine. More specifically, statistically significant increased cancer risk began at an average daily consumption somewhere between one and two drinks daily for women who largely drank liquor, but between two and three drinks per day among women who primarily drank wine or beer. They also found that among women who averaged 1-2 drinks per day there was a statistically significant increased risk for all alcohol-related cancers combined of 8% among women who reported consuming a maximum of 1-2 drinks on any day in a typical month. Though the 10% increased risk found for those reporting a maximum of 3-5 drinks, and the 16% for those reporting more than 5 drinks were not statistically significant, the overall trend by higher maximum number of drinks in a day in a typical month was highly statistically significant (p=0.006). This suggests that among women with the same average daily consumption, risk is somewhat greater among those who sometimes consume larger amounts. However, when adjusting for total alcohol consumption, there was no evidence of frequency of drinking affecting risk for all alcohol-related cancers combined. These and other analyses reported in this study provide inconclusive evidence on how pattern of drinking affected the risk for alcohol-related cancers.

Other studies which did not find a clear connection between frequency of drinking and risk for breast cancer include Tjønneland et al. (2003), Horn-Ross et al. (2004), Bessaoud and Daurès (2008), and Breslow et al. (2011).

In summary, a large study looking at pattern and manner of drinking and mortality risk from all cancers combined and most of the studies which examined how patterns of drinking

affect risk for breast cancer suggest high peak consumption is more likely to be associated with increased cancer risk than is frequent consumption of one to two drinks. It seems that using averaged daily consumption figures to quantify risk might lead to erroneous conclusions about cancer risk within the low-risk guidelines. More research is needed to confirm this.

In addition, how average consumption is calculated can greatly affect results. Dawson's 1998 analysis of different methodologies for measuring consumption found average alcohol consumption varied by 67% (0.43 vs. 0.72 ounces of pure alcohol per day). She concluded that even relatively small differences in the calculation of average consumption could result in misclassification of drinkers. Unfortunately, most of the studies examining cancer risk from drinking have used inadequate questions to calculate average usual consumption levels.

Another major limitation comes from the fact most surveys used in these studies only ask people to report their usual amount of alcohol consumed. Yet, many people sometimes drink much more than their "usual" amount.  A good demonstration of this comes from study by Greenfield et al. (2014). They analyzed pooled data from three surveys of U.S. adult drinkers which assessed people's maximum number of drinks on an occasion and the frequency of drinking various amounts of alcohol (i.e., how often they consumed only 1, 2, 3-4, 5-7 drinks, etc. in a day). Among women who on average had between one and two drinks per day, about 29% consumed 4 or more drinks on at least 1 day per month and another 15% consumed 8 or more drinks on at least 1 day per month. So, a total of about 44% of women who averaged 1-2 drinks per day consumed high-risk amounts of alcohol at least monthly.

Similarly, in a national sample of U.S. past month drinkers aged 30 years and older, Holahan, Holahan, & Moos (2022) found that moderate drinkers (women who averaged up to 7 drinks/week and men who averaged up to 14 drinks/week) made up 71% of those who engaged in binge drinking (had five or more drinks on a single occasion).

The difference between people's usual number of drinks per occasion and maximum number of drinks per occasion is sometimes very large. For example, Goncalves, Schuckit, and Smith (2017) found that men with a history of an alcohol use disorder reported an average of 3.3 drinks as their usual number of drinks per occasion and an average of 14.8 drinks as their maximum number of drinks per occasion. Thus, failure to include drinking beyond the usual amount could cause significant errors in the consumption figures typically used to calculate cancer risk.

Another limitation in cancer studies is they base their results

on self-reports of alcohol consumption. Some research suggests people who are heavier drinkers are more likely to under-report their consumption (DOC 197). This could lead to misclassification of drinkers, potentially resulting in overestimates of cancer risk at lower levels of alcohol consumption.

Cancer studies have also not asked about how fast people drank, and very few asked whether alcohol was consumed with meals. Both factors would affect blood alcohol levels[9] and, potentially, breast cancer risk. Results from studies done in cultures where alcohol is typically consumed with meals are mixed,[10] and even in some of these countries, having more than three drinks in a day was fairly common among adults who primarily drank with meals.[11] Whether alcohol is consumed when food is in the stomach could be important because a much lower peak blood alcohol level is reached with food in the stomach than when the same amount of alcohol is consumed on an empty stomach. In addition, research suggests at least half the alcohol in a drink which is consumed slowly with food can undergo first-pass metabolism, thereby reducing the amount of alcohol distributed throughout the body. In contrast, when people drink quickly, drink larger amounts at a time, or drink on an empty stomach, nearly all the alcohol consumed is distributed throughout the body.[12] Hence, the risk for breast cancer could be affected by the manner of consumption, even when the same amount of alcohol is being consumed on a given occasion. This conclusion is supported by the findings in the Ma, et al. (2021) study summarized earlier.

In contrast, using largely the same sample as Ma, et al. (2021), Jani et al. (2021) did not find drinking without food to be related to the incidence of alcohol-related cancers. Differences in analytic methods might explain this. For example, Ma, et al. (2021) reported risk for cancer fatalities and compared risk for those who always ate when drinking to the combined group of those who did not eat when drinking and those who sometimes did, while Jani et al. (2021) reported the incidence of alcohol-related cancers (not just fatalities) and compared risk for those who always ate when drinking to two separate groups—to those who did not eat when drinking and to those who sometimes did. In addition, the studies differed in how they examined the role the combination of manner and frequency of drinking played in risk.

As illustrated by the contrasting findings above, results of research can vary significantly due to the choices made on how to analyze the data. Chu et al. (2020) examined 97 studies on alcohol and breast cancer and concluded that much of the wide variation in results within and across these studies was due to how the data was analyzed, and suggested bias could lead to selective reporting of analytical strategies and accompanying results. They stated, "Therefore, individual reported relative risk estimates from observational studies should be interpreted with caution" (p. 612).

Another difficulty in drawing clear conclusions around low-level drinking and breast cancer risk comes from the presence of multiple potentially confounding factors. These include number of births, age at first birth, breastfeeding duration, menopausal status, hormonal contraceptive use, genetics, prenatal alcohol exposure, age at which drinking occurred, body mass index, hormone replacement therapy, and several dietary and other lifestyle factors. No studies include all these potentially confounding variables. Findings based on controlling for some of these variables can conflict, too. For example, some studies suggest the breast cancer risk associated with averaging 1-2 drinks per day is greater for women who do so after menopause,[13] while some have suggested the risk is greater before menopause.[14] Other evidence indicates drinking that occurs between first menstruation and first pregnancy creates the greatest risk.[15] In addition, some studies suggest the increased risk from drinking is confined largely to women who have either used hormone replacement therapy[16] or those with low folate consumption.[17] Some evidence also suggests the potential increased cancer risk from consuming "moderate" amounts of alcohol can be eliminated by increased folate intake (Sharma and Krupenko, 2020).

An additional potentially confounding factor that is seldom examined is exposure to second-hand tobacco smoke. Several studies suggest this "passive smoking" (particularly prior to first pregnancy) is associated with increased breast cancer risk.[18] Failure to control for this and other potentially confounding factors could lead to false conclusions about the cancer risks resulting from drinking within the low-risk range.

Perhaps the strongest evidence for increased risk for a variety of alcohol-related cancers at low consumption levels is for those with genetic differences affecting the activity of enzymes that metabolize alcohol and its first metabolite, acetaldehyde. More specifically, some people reach higher peak levels of acetaldehyde and/or metabolize acetaldehyde more slowly. Since acetaldehyde is more carcinogenic than alcohol, this greater exposure to acetaldehyde could explain the elevated cancer risk often found at low-level consumption among people with these genetic variants. Though they also can have facial flushing, a more rapid heart rate, and nausea after drinking small quantities (at least at first), some choose to drink regularly anyway. These individuals might be the most at risk for cancers from consuming low quantities of alcohol.[19] There is also some evidence that very frequent light consumption might create even greater risk for gastrointestinal cancers among this group than infrequent consumption of larger quantities, though those with frequent consumption of larger quantities had the most risk (Yoo et al., 2021).

## Conclusion

The increase in cancer risk, if any, resulting from consumption of alcohol in a manner consistent with the low-risk guidelines is currently unknown. Despite the unanswered questions in cancer research, we believe it is more protective of most things people value to choose in the direction of caution. Consequently, we recommend people consider potential cancer risks when deciding how to adjust the generic low-risk alcohol guidelines downward. It is perhaps even more important for people with risk factors for alcohol-related cancers to consider reducing the alcohol guidelines, particularly those with a family history for these cancers and those with variants in the genes that affect alcohol and acetaldehyde metabolism (often evidenced by facial flushing, nausea, and tachycardia after consuming just a drink or two). Ultimately, this must be an individual decision, ideally based on the best available information regarding the potential risks and/or benefits of drinking within the low-risk range,[20] and with consideration of one's values and the potential impact on important relationships.

**References:**

Please CLICK HERE to view a complete list of references in the PDF of this article.

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# prime for life ®  ...the next version
## a timeline

**2023 CES/CET**
Gathered Instructor Feedback from Continuing Education Sessions (online) and Trainings (in person)

**September 2023**
Ray and Michelle reviewed Instructor feedback and preliminary research.

**December 14, 2023**
**Vision Meeting** - Reports from Ray Daugherty and Mark Nason, Lessons learned from 9.5 roll out, Report from Research Team Director Rita Dykstra

**January 8, 2024**
**Vision Meeting**- Roles and Responsibilities of PRI Staff and Contractors. Group discussion of a major research project and 9.5 data and how this might influence larger structural changes for Version X. A decision to continue with the update timeline was agreed upon, with no major structural changes until data collection and report is final. Emphasis will be cosmetic update, teachability and consistency of images and video/animations for this revision.

**February 8, 2024**
**Vision Meeting**- Vision paper items moved into planning with timelines and tasks. Jamee Smith, PRI Director of Marketing and Communication, provided training on Teams and Project Tracker. Mike O'Bryan, PRI Media Producer, provided an update of new Treasures Lost stories.

**March 2024**
**Research Team:** Ray is reviewing research with a focus on Model, Theory and Behavior Change and preparing a CES session topic to share his findings with instructors. Other Research Team members (welcome back Allan Barger!) are focused on THC, Vaping (welcome Aaron Weiner), Guidelines, Epigenetics, Brain research and Opiate reviews.

## Continuing Education Spotlight:
### Special Guest Dr. Aaron Weiner

The 2024 Continuing Education calendar is full of "can't miss" sessions! And they are all offered at no cost to Prime For Life instructors/providers and Prime Solutions counselors. Check out monthly course offerings on the Training Events page of primeforlife.org.

In May, we're welcoming Dr. Aaron Weiner to the lineup, presenting *Current Trends in Nicotine, THC, and Vaping: Trends and Strategies for Trainers and Educators.*

With vaping remaining popular for nearly a decade and recreational THC being increasingly normalized and promoted, people face new and difficult pitfalls related to substance use and addiction.

Join Dr. Weiner for an exploration of the science behind vaping nicotine and THC, the impact on the developing body and mind, and how to effectively talk with teens and their parents to make a positive impact on this challenging and important subject.

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## Prime For Life Endnotes PDF

There are endnotes sprinkled throughout the Prime For Life E-manual. They are full of helpful information - both for instructor knowledge and answering participant questions.

So why not have them all in one place for easier reference?!

Mark Nason has compiled the endnotes into a single PDF available on the Dashboard here.

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We'll share program updates, Continuing Education schedules, and more! Sign up for Prime For Life or Prime Solutions notes on the Contact Us page at primeforlife.org.

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