



Depression and Endurance Sports

Nikki Kimball, Rob Krar and John Onate, M.D.

Date

Depression is often not recognized and is not well understood



Rob Krar

DEPRESSION & ULTRARUNNING

MY JOURNEY INTO THEIR DEPTHS



Photo credit — Ken Etzel

DEPRESSION & ULTRARUNNING

MY JOURNEY INTO THEIR DEPTHS

- INTRO
- THE BEGINNING
- THE PATH TO UNDERSTANDING
- LOVE
- FINDING PEACE ON THE TRAILS
- DEPRESSION & ULTRARUNNING — A COMPLICATED RELATIONSHIP
- THE POWER OF THE MIND
- FEARS
- CLOSING THOUGHTS

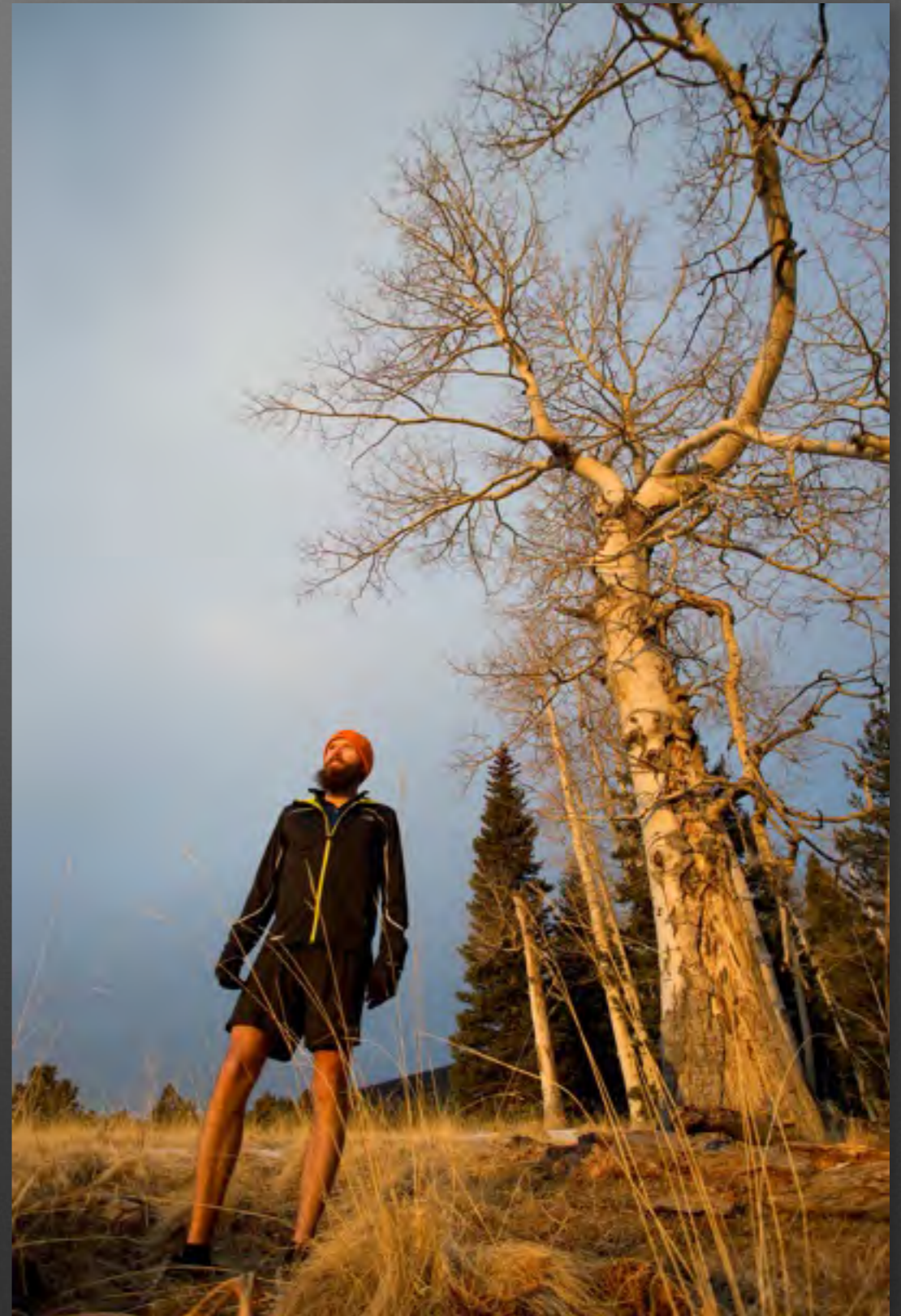


Photo credit — Rich Wheater



THE BEGINNING

- University and the beginning of change
- The demands of studies and Division I athletics
- Move to Phoenix, an unfulfilling job and the consequences of the graveyard shift
- Denial, shame, embarrassment and anger
- Cycles of unpredictability
- Acceptance



THE PATH TO UNDERSTANDING

- “Everything happens for a reason” and pieces of the puzzle
- Struggle and adversity
- Finding love
- Minimizing the effects on others



FINDING PEACE ON THE TRAILS

- Time heals
- Missing an old friend
- Discovering the ski mountaineering corner piece
- Unexpected opportunity and a new philosophy
- Listening to mind *and* body

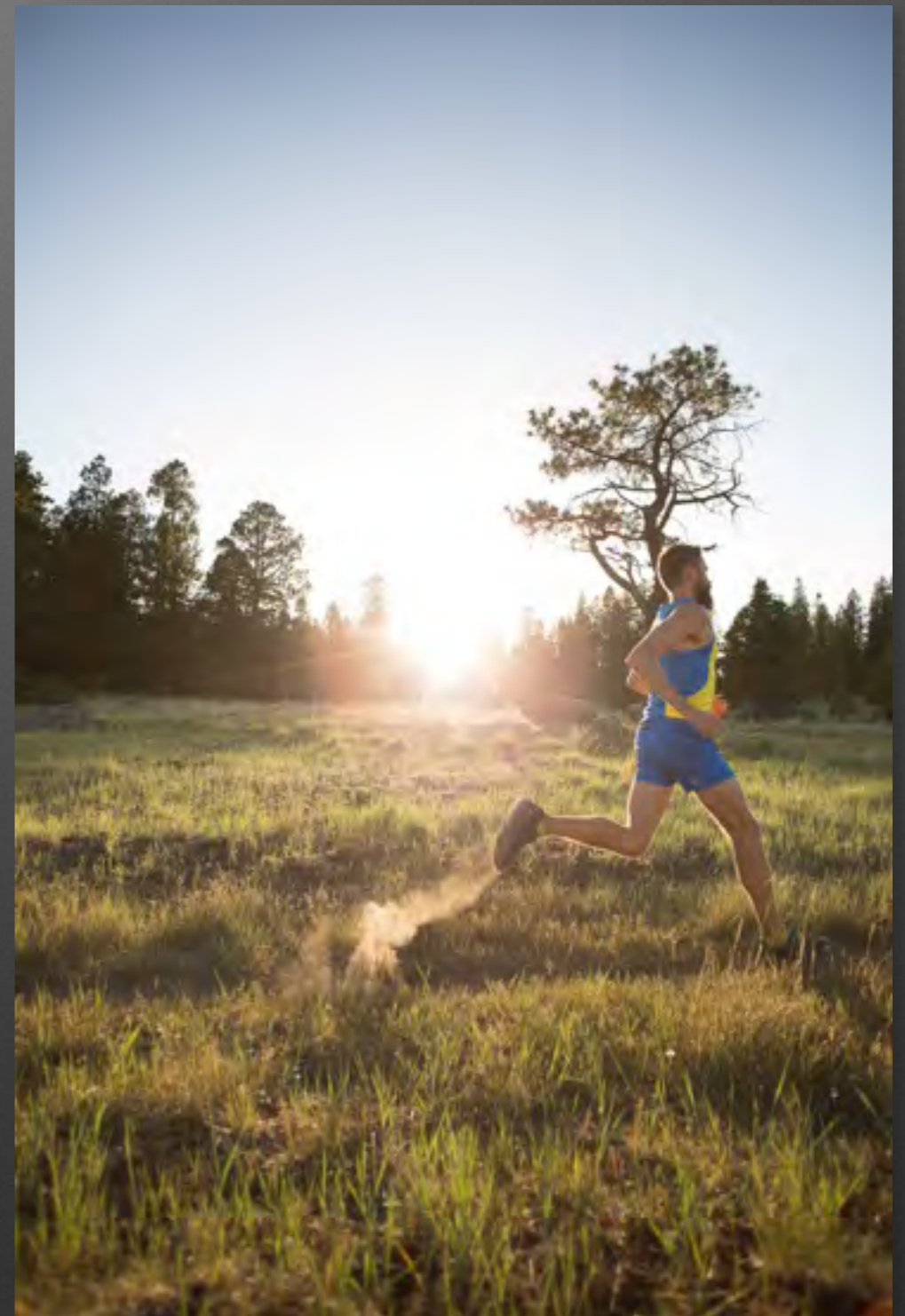


Photo credit — Joel Wolpert

DEPRESSION & ULTRARUNNING —A COMPLICATED RELATIONSHIP

- “Why do I run and what do it think about for so many miles”
- A complicated relationship that seems to go hand in hand
- A stretch to say I love running — more often than not its a struggle to get out the door
- I do love how I feel after each and every run
- Doubt and thoughts of failure when when I can't make it out the door



THE POWER OF THE MIND

- My mind — worst enemy and greatest asset
- Harnessing, welcoming, and controlling the pain
- Accepting and embracing the dark times has ultimately led to growth and discovery



Photo credit — Rich Wheater

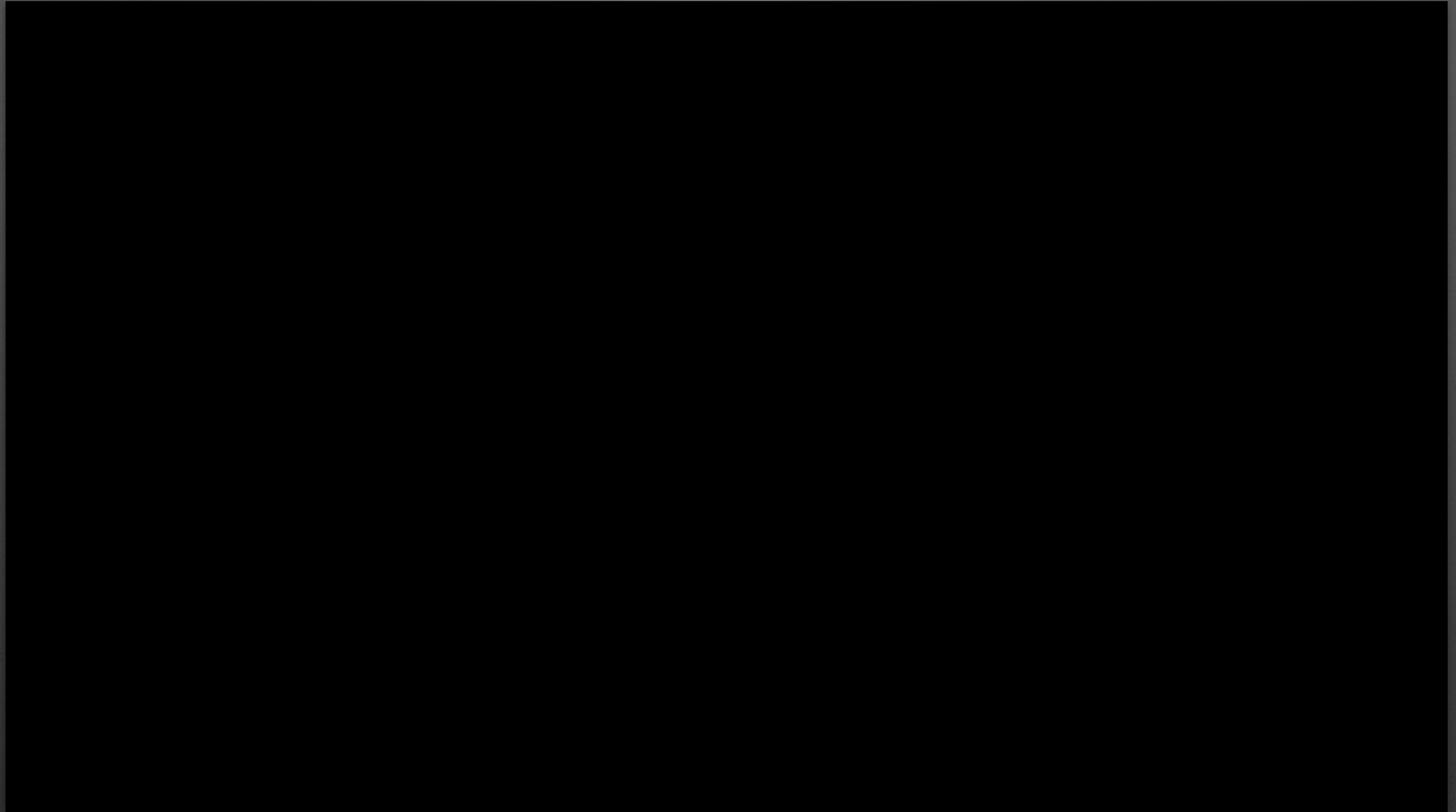


Photo credit — Luis Escobar

FEARS

- What if it gets worse?
- The rewards are great but so are the potential consequences
- Accepting greater risk and stepping out of my comfort zone





CLOSING THOUGHTS

- I'm a student of life and have much to learn
- Depression and ultrarunning — lifelong partners
- Three quick thoughts to those suffering and searching:
 - Know you are not alone
 - Find someone to talk to
 - Believe you can learn from the darkest hours

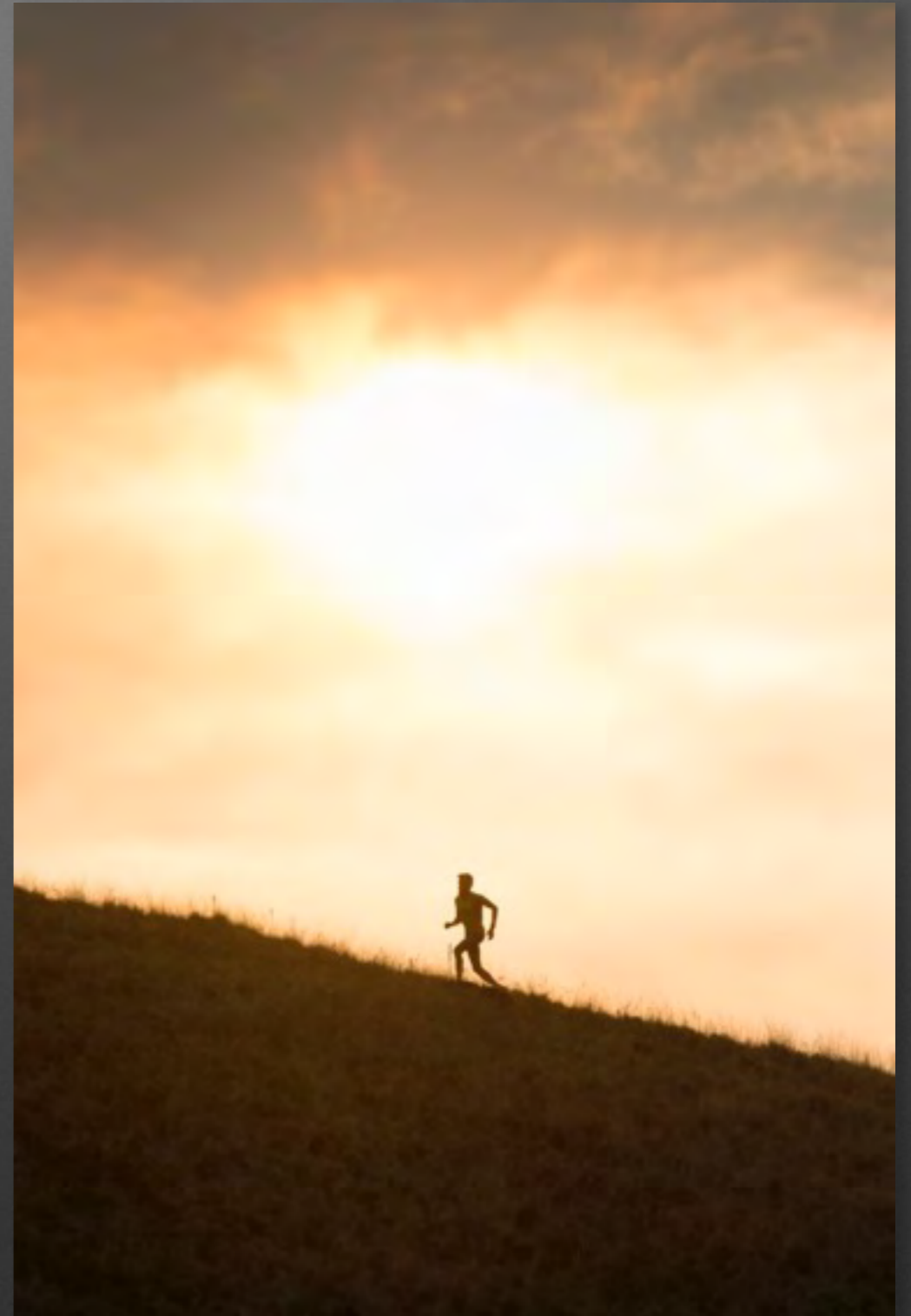


Photo credit — Alex Aristei

DEPRESSION & ULTRARUNNING

MY JOURNEY INTO THEIR DEPTHS



Photo credit — Matt Trappe

Nikki Kimball

Professional Athlete, Physical Therapist, Person with Major Depression

- My history: How depression shaped my life...and it's not all bad
 - Initial plan
 - Change of plan
 - Graduate school: change of MD
 - Rediscovering running
 - Ultramarathon
 - Paying forward



Benefits of Exercise WRT Depression

- Efficacy: Many studies and personal experience show it works (even true of boring indoor exercise modalities)
- Fast acting and can be combined with other therapies
- The side effects are actually good for you, mostly
- Available without visits to medical professionals
 - Note that exercise does not replace medical care, and should be combined with same.
- Healthy coping mechanism
- Can be social or done alone
- May help with sleep
- Helps with time management skills/ adds structure to one's day

More Specifically, Benefits of Running WRT Depression

- Supportive community in general
- Intimate training groups encourage close bonds
- Often find others with similar stories, worries, health issues
- Inexpensive
- Frequent volunteer opportunities (social, stimulating, inspiring, basically makes one feel good)
- Great ratio of time spend to fitness earned
- Exploration/beauty/travel

How to Use Walking, Running, or Other Exercise for Mental Health

- People with depression must find a family doctor, psychologist, psychiatrist or other mental health expert who understands the role of exercise in mental health care.
- Injuries happen: building a relationship with a physical therapist, chiropractor, or other sports medicine expert while healthy can minimize chance of injury and/or time away from exercise if injury occurs.
- As injuries and illness affect mental health as well as physical health, more professional mental health intervention during times of injury/illness may be needed. Encourage communication between the patient and his mental and physical health care professionals.

Maintaining the Desire to Exercise for Mental Health

- Keep it fun:
 - Partners (human and other)
 - Add variety: cross train, learn a new sport, take a class at the gym, enter a silly themed race
 - Change your MP3 playlist
 - Core workouts done with friends (injury prevention key as well)
 - Buy a new outfit
 - Join running store or club group runs



Motivation, continued

- Set realistic and achievable goals.
- Goals don't have to be exercise-specific: be creative.
 - Walk a new trail once a month
 - Go to a race with the goal of cheering on every runner you pass (especially good for out and back courses)
 - Decide to get non-exerciser to go for a walk with you
 - Volunteer at an athletic event
- Set up a schedule, either for yourself or with another person
- Don't fear adjusting goals: depression (and many common life stressors) can be fatiguing. Competing a ten minute walk every day can be a very appropriate goal.
- Recognize motivation levels change with changes in mood

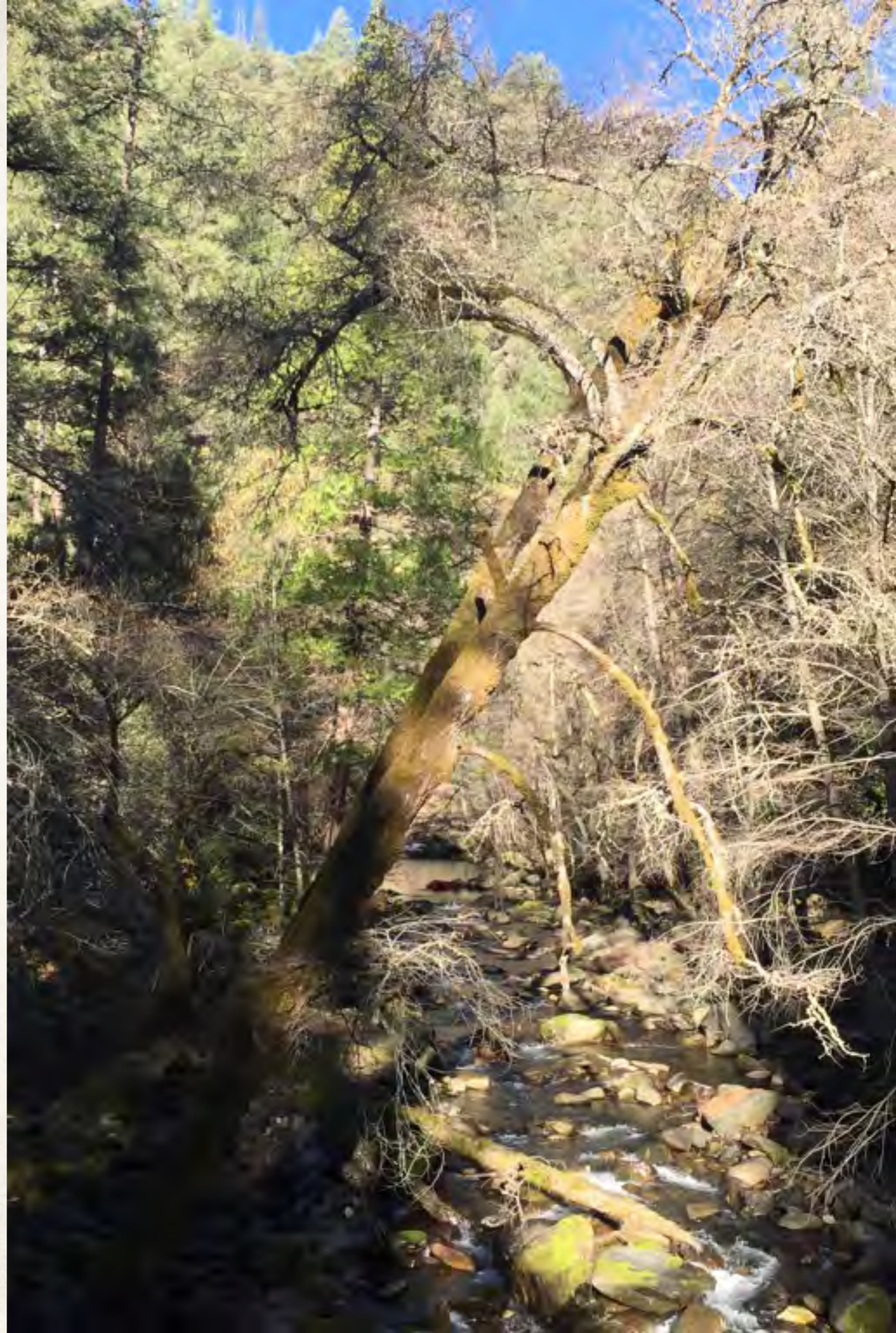


Cimbaly/E.SAMPERS©MDS2014

John Onate

Major Depression

- ❖ Medical Condition Associated with Coronary Heart Disease, Hypertension and Diabetes
- ❖ Found to be an independent risk factor for DM2 and HTN
- ❖ Associated with low physical activity but multiple studies find the having depression alone increases risk for CAD and metabolic problems
- ❖ Strong association with completed suicide



Major Depression-Key Clinical Features

- ❖ *Prolonged Low Mood, Sadness and or Depressed Mood*-often lasting weeks or longer, expression of mood varies with culture and other demographics.
- ❖ *Loss of the capacity to feel pleasure*-other people often notice this first-not smiling or laughing, lack of interest in work or hobbies
- ❖ Associated with:
 - ❖ change in appetite or unexplained weight loss or gain
 - ❖ inattention
 - ❖ disrupted sleep
 - ❖ excessive guilt
 - ❖ delusions
 - ❖ hallucinations
 - ❖ suicidal thoughts

Depression Screening

- ❖ The **Patient Health Questionnaire=9 (PHQ9)** is validated for screening, aid in diagnosis and treatment response
- ❖ A short version of the PHQ9 (the PHQ2) is 85% sensitive for major depression
 - ❖ **0=none, 1=less than 1 / 2 the days, 2=half the days, 3 everyday or almost every day**
 - ❖ **Little interest or pleasure in doing things the past 2 weeks: 0 1 2 3**
 - ❖ **Feeling down depressed or hopeless the past 2 weeks: 0 1 2 3**

Is Aerobic Exercise Effective For Depression?

- ❖ Moderate aerobic exercise for at 30-40 minutes a day, 4 days a week for 2-3 months has significant effect in reducing the symptoms of depression
- ❖ For clinical depression that is mild to moderate in severity, 2-3 months of regular aerobic exercise may be as effective as antidepressant medications. *This is not the case for severe major depression*
- ❖ Cooney GM, Dwan K, Greig CA, Lawlor DA, Rimer J, Waugh FR, et al. Exercise for depression. Cochrane Database Syst Rev. 2013;9:CD004366.
- ❖ Stanton R, Reaburn P. Exercise and the treatment of depression: a review of the exercise program variables. J Sci Med Sport (2014) 17:117–82. doi: 10.1016/j.jsams.2013.03.010

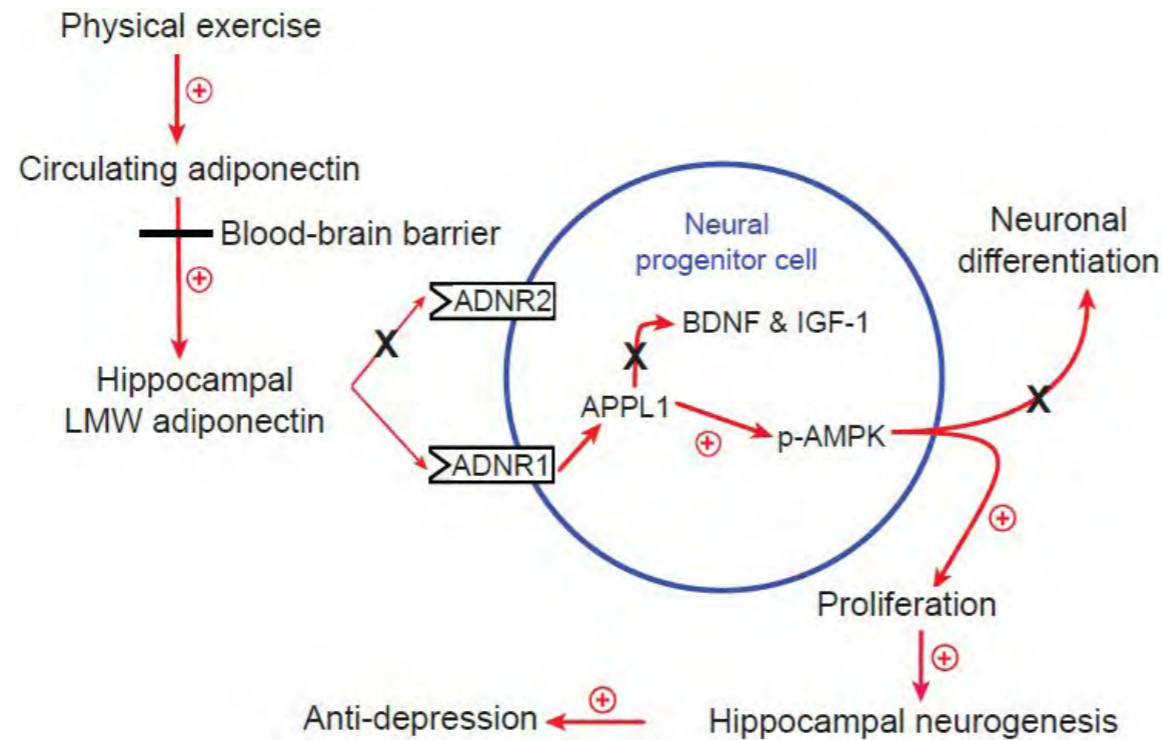
How Does Exercise Cause an Antidepressant Effect? A Potential Physiologic Explanation

- ❖ **Adiponectin**, is secreted by peripheral mature adipocytes *during physical exercise*-the hormone stimulates hippocampal neurogenesis and is found reduce depression in animal models
- ❖ Suk Yu Yau, Ang Li, Aimin Xu, Ph.D. and Kwok-fai So, Ph.D. *Fat cell-secreted adiponectin mediates physical exercise-induced hippocampal neurogenesis: an alternative anti- depressive treatment?* Neural Regen Res. 2015 Jan; 10(1): 7–9.

PMC full text: [Neural Regen Res. 2015 Jan; 10\(1\): 7-9.](#)
doi: [10.4103/1673-5374.150637](#)
[Copyright/License](#) [Request permission to reuse](#)

<< Prev Figure 1 Next >>

Figure 1



Schematic diagram illustrating the potential mechanism mediating the anti-depressive action of physical exercise.

As shown in this cartoon, physical exercise initially raises circulating adiponectin levels. The low-molecular-weight (LMW) form of adiponectin passes through the blood-brain barrier, and accumulates in the hippocampus to activate adiponectin receptor (ADNR) 1 expressed by neural progenitor cells. Following the relay of adapter protein containing PH domain, PTB domain and leucine zipper motif 1 (APPL1), the phosphorylated AMP-activated protein kinase (p-AMPK) is increased, subsequently initiating the downstream proneurogenic cascade that enhances hippocampal cell proliferation without affecting neuronal differentiation. The enlarged population of adult-born neurons changes the activity of neural circuits and enables the antidepressant effects elicited by physical exercise. Brain-derived neurotrophic factor (BDNF) and insulin-like growth factor (IGF-1) do not seem to directly crosstalk with this adiponectin-stimulated proneurogenic pathway.

Antidepressant Medication Effect on Running and other Endurance Sports

- ❖ There are a small number of studies looking at the impact of treating athletes with antidepressants on performance.
- ❖ **SSRI's** (Lexapro Prozac), **SNRI's** (Effexor) and **Bupropion** (Welbutrin) *do not have significant effect on performance*. Combining antidepressants with exercise may have a synergistic effect on reducing depression severity
- ❖ WADA has investigated Bupropion as a possible PED but multiple studies have a small n and mixed results
- ❖ **Tricyclic Antidepressants (Amitriptyline, Nortriptyline)** have *significant cardiac side effects and anticholinergic activity that can have a negative impact on training* and athletes treated with these medications should be closely monitored by experienced healthcare professionals

Summary

- ❖ Depression is a serious medical condition that is often not recognized and treated
- ❖ There are evidence based and effective treatment options including pharmacologic and non-pharmacologic interventions
- ❖ Athletes are at risk and WSER data shows participants have high rates of depression and other mood disorders
- ❖ Aerobic Exercise can be an effective activity to reduce and manage the symptoms of depression



QUESTIONS?
