

vec · tor /'vektər/

noun: A quantity having direction as well as magnitude

fitness

FITNESS  
IS A VECTOR

rich kilmer, vice president r&d, livingsocial

2002



## stats

- Age 43
- peak weight  
265 lbs
- weight loss  
started 2002
- weight loss  
complete 2005
- total weight lost  
80lbs



after one year



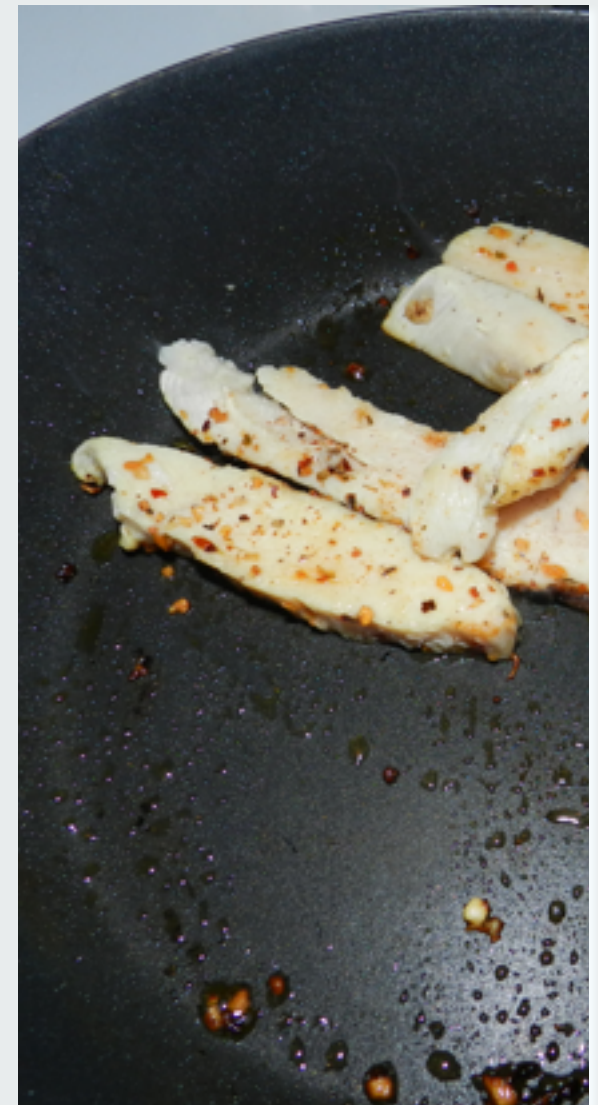


# EXERCISE 1.5 YEARS





LUNCH	
Nori Salmon Handrolls (316)	Lam (32) (32)
<i>left-over</i> Lamb Chops with Olive Tapenade, <i>left-over</i> Greek Salad with Avo-Ziki	Or (28) So
<i>left-over</i> Orange Braised Beef Shanks, <i>left-over</i> Butternut Sage Soup	Ha C S
Tangy Taco Salad (296), <i>left-over</i> Cucumber Salsa	B V
Wild Salmon or Tuna, Green Olives	



DIET 1.5 YEARS

2 years





2008



#### site menu:

[introduction](#)  
[what is a push up?](#)  
[why push ups?](#)  
[initial test](#)  
[week 1](#)  
[week 2](#)  
[week 3](#)  
[week 4](#)  
[week 5](#)  
[week 6](#)  
[final test](#)  
[100 push ups book](#)  
[iPhone app](#)  
[iPad app](#)  
[android app](#)  
[push ups logger](#)  
[complete program](#)  
[take the challenge](#)  
[did the hundred](#)  
[spread the word](#)

#### the hundred push ups training program

[Ads by Google](#)
[Push UPS](#)
[Workout](#)
[Exercise Plan](#)
[Muscle](#)



If you're serious about increasing your strength, follow this six week training program and you'll soon be on your way to completing 100 consecutive push ups!

Think there's no way **you** could do this? I think you can! All you need is a good plan, plenty of discipline and about 30 minutes a week to achieve this goal!

No doubt some of you can already do 50 consecutive push ups, but let's face it, you're in a big minority. Most of you reading this won't even be able to manage 20 pushups. Actually, I'm sure many of you can't even do 10.

However, it really doesn't matter which group you fall into. If you follow the progressive push ups training program, I'm positive you'll soon be able to do 100 push ups!

#### The buzz about one hundred push ups:

“*Thanx for the program - it's brilliant!*”

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AdChoices [D]

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#### [XSport Fitness - 24/7 gym](#)



Memory







# DARYL PENDLETON

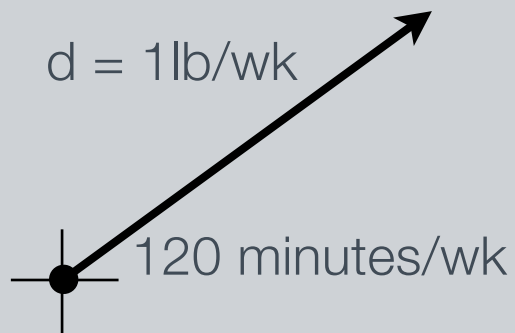
Owner, Kamp Pendleton

vec · tor /'vektər/

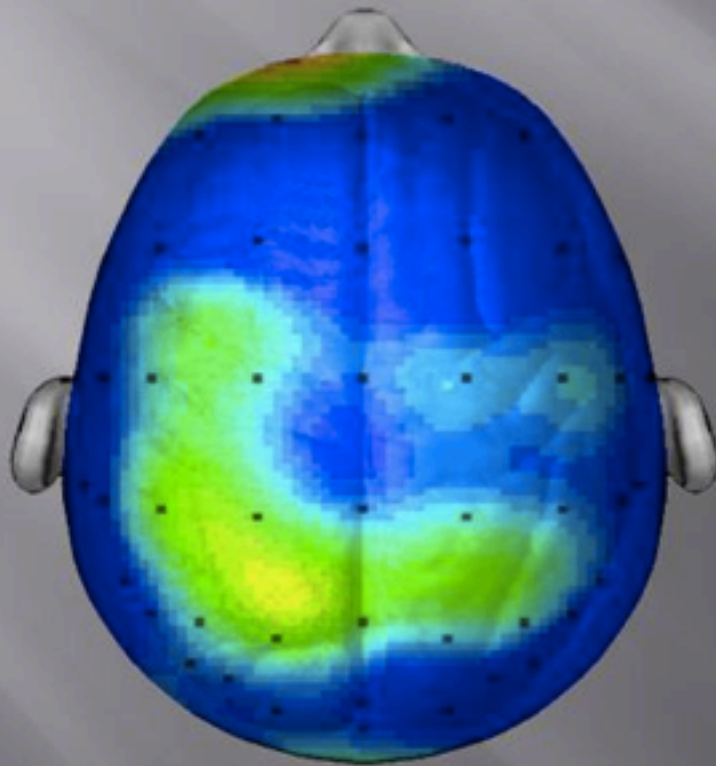
noun: A quantity having direction as well as magnitude

**vector**

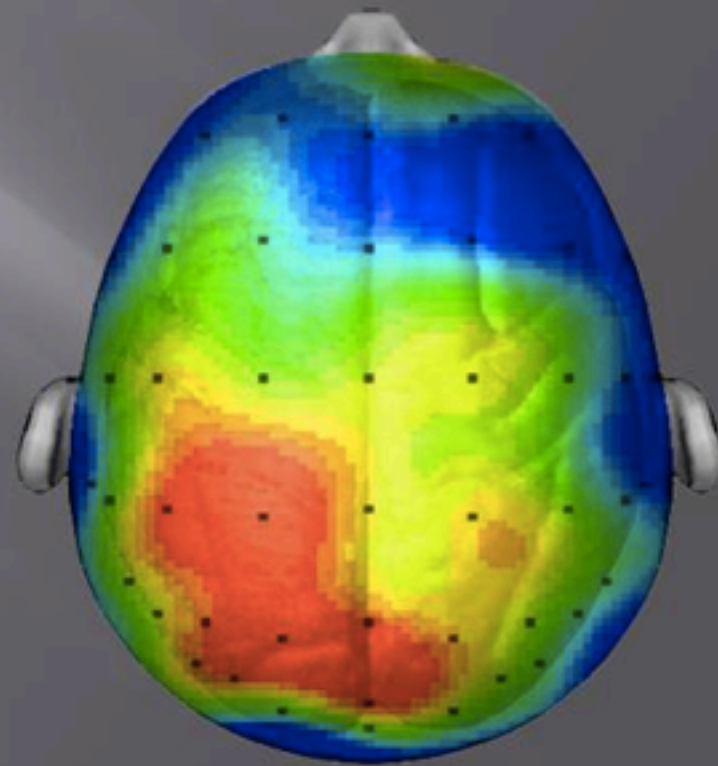
**fitness**



BRAIN AFTER SITTING  
QUIETLY



BRAIN AFTER 20 MINUTE  
WALK

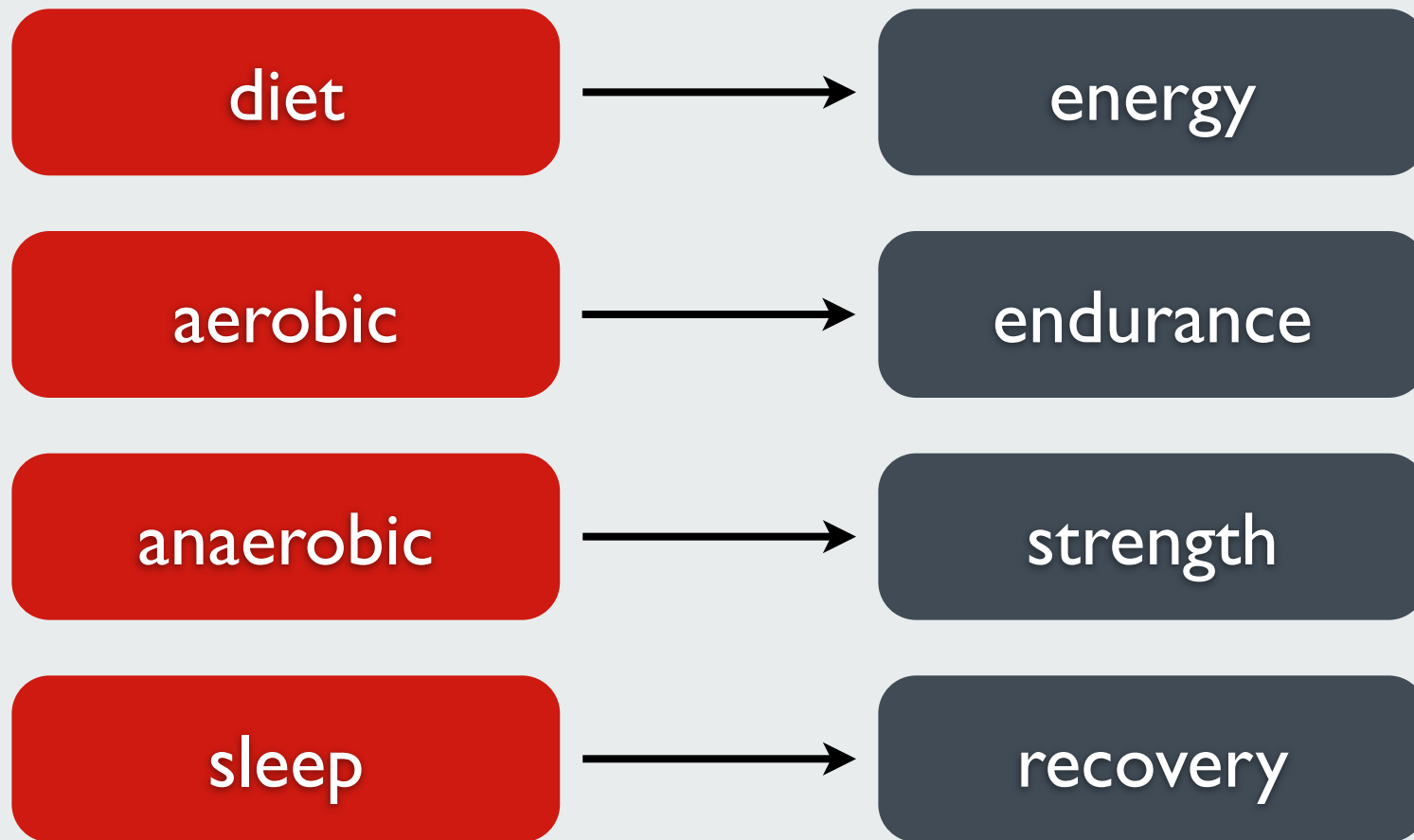


Research/scan compliments of Dr. Chuck Hillman University of Illinois





# FITNESS ELEMENTS



fitness

DIET



\$42B



# calories

protein

4 cal/gram

carbohydrate

4 cal/gram

fat

9 cal/gram

$$\begin{array}{r} \text{total calorie intake} \\ - \text{basal metabolic rate} \\ \hline \text{calorie deficit/surplus} \end{array}$$

-500 calories a day

== 1lb fat/week

one pound == 3500 calories

655

4.35 x 'typical' lbs

4.7 x height inches

+ 4.7 x age

---

= female bmr

66

6.23 x 'typical' lbs

12.7 x height inches

+ 6.8 x age

---

= male bmr





	TARGET	ACTUAL	
Calories Burned	2500 <small>KILOCALORIES</small>	2520 <small>KILOCALORIES</small>	
Calories Consumed	2500 <small>KILOCALORIES</small>	2064 <small>KILOCALORIES</small>	
Calorie Balance	0 <small>KILOCALORIES REPORT</small>	456 <small>KILOCALORIES DEFICIT</small>	 ↓ You are on a weight loss band
Physical Activity	1:15 <small>HOURS MINUTES</small>	4:50 <small>HOURS MINUTES</small>	
Steps Taken	10000 <small>STEPS</small>	11305 <small>STEPS</small>	
Sleep Duration	8:00 <small>HOURS MINUTES</small>	5:54 <small>HOURS MINUTES</small>	
Weight	Current Weight 123 <small>POUNDS</small>	I have lost 2 <small>POUNDS SINCE MY LAST</small>	You have not logged your weight for this day. <a href="#">Add Weight Measurement</a>

Support  
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Summary  
Calories Burned  
Calories Consumed  
Calorie Balance

Nutrition  
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My Foods  
Goal Following

Tools  
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# BODYMEDIA FIT

**myfitnesspal**

Summary Daily Weekly


◀ SATURDAY / Oct 6, 2012 ▶

**Your Daily Summary**

**1296** CALORIES REMAINING [Add to Diary](#)

Goal	Food	Exercise	Net
1240	+ 160	- 216	-56

**News feed**

 **heyjenni1** burned 216 calories doing 30 minutes of "Aerobics, general"  
22 minutes ago

[Comment](#) 1

[Edit](#) **Diary** [Add](#)

Goal	Food	Exercise	Net	Remaining
1890	747	369	378	1512

◀ THURSDAY / Aug 2, 2012 ▶

**Breakfast** 340 cal [Edit](#)

- Homestyle Breakfast Potatoes -...** 85 [▶](#)  
2 oz
- Breakfast Sausage Links - Original** 167 [▶](#)  
Johnsonville (An), 2 skillet-cooked link...
- No Pulp Orange Juice** 88 [▶](#)  
Tropicana No Pulp 10oz, 6.2 oz

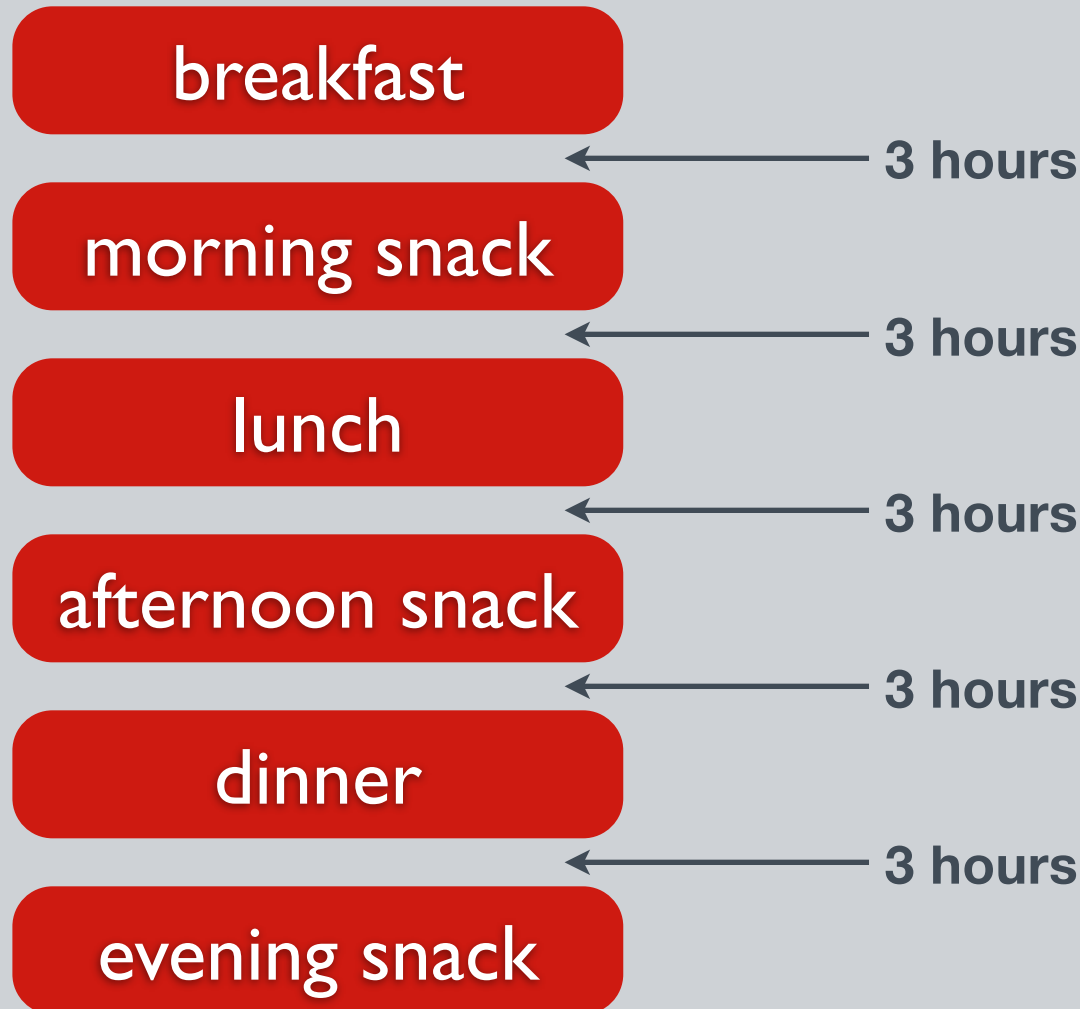
**Lunch** 360 cal [Edit](#)

- Homemade Turkey Sandwich(3 Sli...** 250 [▶](#)  
1 sandwich
- Garden Veggie Crisps - All Natural...** 110 [▶](#)  
Sensible Portions, 1 oz (28 g); 18 crisps

**Snacks** 47 cal [Edit](#)

# LOG YOUR CALORIES

# TIMING MEALS



**eating**

# TIMING FUEL

**aerobic**

**anaerobic**

1 hour before  
high carb

**energy phase**

1.5-2 hours before  
carb/protein mix

**workout**

15-20 minutes after  
protein

**anabolic phase**

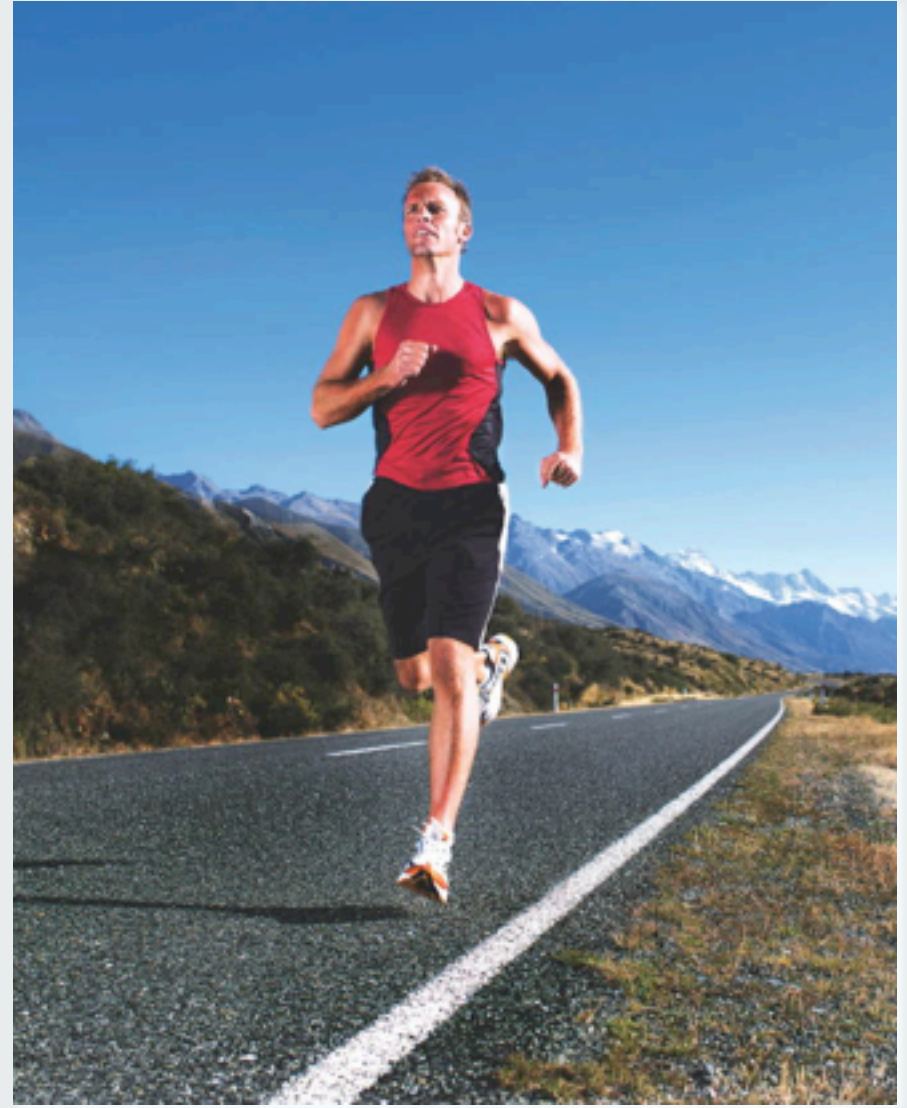
immediately after  
protein





$\text{H}_2\text{O}$





ONE OREO PER MILE

fitness

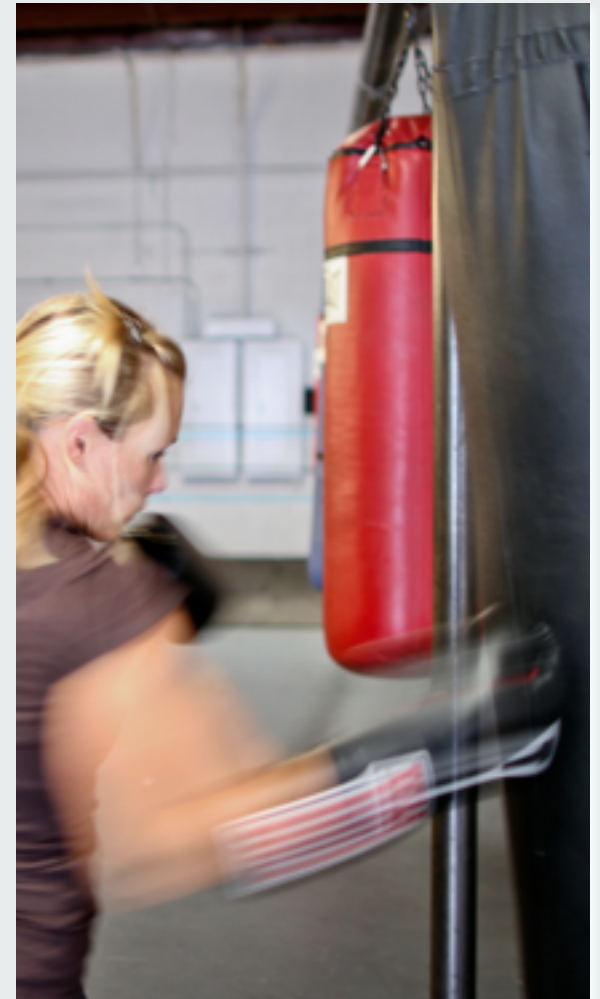
# EXERCISE

**\$18.5B**

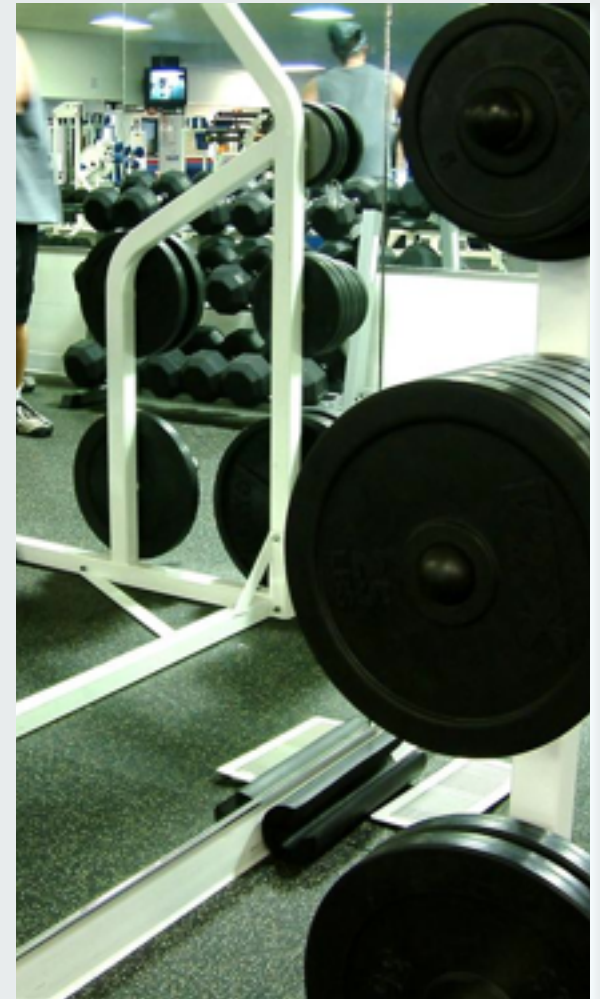




# AEROBIC



# ANAEROBIC



# CORE

- buy an exercise mat!
- bicycles (piston movement), feet flat (CRUNCH), feet veed (CRUNCH), feet up (reach to toes)
- press and hold
- plank (30s => 2m)
- russian twist
- add weights over time (plate)



# BODY WEIGHT

- pushups - just break vertical at first, goal is to the floor
- squats - butt out, back arched, goal is 'seated' position
- planks to pushups
- lunges - alternate standing, walking lunges
- pullups - start with hangs, work your way to a pullup

# RESISTANCE

- higher repetitions 15/12/10
- 3+ sets
- use dumbbells (be careful of heavy weights)
- short recovery between sets (30 seconds)
- combination exercises are some of the best (lunge+curl, squat+press, etc)

**BUT I HAVE  
NO TIME!**

High Intensity Interval Training



# tabata



Izumi Tabata

- 1996 study
- 2 groups using  $\text{VO}_2$  Max as a measure
- **Group 1** - 5 days x 1 hr jog 70%
- **Group 2** - 4 days x 4 min HITT 170% + 70 min 70%
- Results  
G1: aerobic  
G2: > aerobic + anaerobic (26%)

Preset: Tabata

+

Sound: On

Tabata

15:00

08

Cycles

03

Tabatas

prepare01:00

work00:20

rest00:10

cycles08

tabatas03

-+

start

## Sleep on problem solving

Ut Na Sio · P

© Psychonomic

**Abstract** Problem solving is a complex task that is often compared with work. The problem is that it is often determined whether sleep or whether sleep is to an interruption of improvements in activation, which should be greater. We present research that we associate task strength with the strength of the of sleep, which is obviously unsolvable. A number of differences no difference that sleep facilitates activation problems.

**Keywords** In Task complex

Many scientific literature were of sleep

U. N. Sio · P. M. Centre for Research Department of Psychology Lancaster LA1 4

P. Monaghan (✉) Department of Psychology Lancaster LA1 4 e-mail: p.monaghan

Published online

## Annals of Internal Medicine

### A New Challenge to Widely Held Views on the Role of Sleep

Philosophers, moralists, and scientists have been interested in sleep since ancient times. Although hypotheses and beliefs about the role of sleep have varied over the centuries, many have considered sleep to be an idle state or a sole function of the brain (1). However, suggestions of a link between sleep and metabolic functions can be found in early Roman medicine. Aulus Cornelius Celsus (circa 25 BCE to 50 ACE) argued in favor of "restricted sleep" for the treatment of extra weight, and Galen (129 to circa 216 ACE) listed "somnia et vigilia" (sleeping and waking) as important causes of illness (2).

With the turn of the 20th century, research about the effects of sleep on health risks has sharply increased. This scientific work is stimulating a public health debate that points to the declining trends in quality and quantity of sleep in modern society as contributing factors to ill health (1).

We spend approximately one third of our lifetime asleep, more as babies and children, settling into a pattern of approximately 7 to 8 hours per night in adulthood. Data suggest that modern society's trends of longer work hours; more shift work; and 24-hour, 7-day-per-week availability of commodities have been accompanied by reduced sleep duration (1). Too little sleep is associated with adverse health outcomes that include total mortality (3), stroke and coronary heart disease (4), type 2 diabetes (5), hypertension (6), respiratory disorders (1), poor self-rated health (1), and obesity in adults and children (7).

Although the potential public health implications of a causal relationship between poor sleep and poor health would be far-reaching, observational studies do not prove causality. Short-term randomized clinical trials of manipulation of sleep duration support the hypothesis that sleep deprivation leads to impaired glucose tolerance and increased insulin resistance (8), increased appetite through changes in leptin and ghrelin levels (9), and reduced energy expenditure (10).

In this issue, Broussard and colleagues (11) report the results of a randomized, crossover clinical trial of sleep deprivation in 7 young, healthy volunteers. After a week of stabilization, the volunteers underwent, in random order and 4 weeks apart, 4 nights of normal sleep (8.5 hours) and 4 nights of sleep deprivation (4.5 hours). The researchers monitored sleep stage with polysomnography and adherence to bedtime schedules with actigraphy. Caloric intake and meals were kept constant throughout the study.

At the end of each study period, the participants had an intravenous glucose tolerance test to measure total body insulin sensitivity and a subcutaneous abdominal fat biopsy to isolate adipocytes. Researchers then exposed adipocytes in vitro to incremental insulin concentrations to measure the ability of insulin to increase the phosphorylation of Akt, an important step in the insulin-signaling pathway.

The results show that sleep deprivation was associated with a 30% reduction in phosphorylation of Akt. This finding indicated reduced peripheral insulin response and was paralleled by a reduction in total body insulin sensitivity. To our knowledge, this is the first clinical study linking sleep restriction to an alteration of a molecular metabolic pathway.

The authors deserve commendation for a study that is a valuable contribution to the understanding of the causal pathways by which reduced sleep duration may directly contribute to diabetes and obesity. The study used a strictly controlled experimental design with a crossover phase to minimize between-participant variability. Measures of sleep were objective and were performed in standardized conditions. Finally, the effect size of a 30% reduction in peripheral insulin sensitivity is biologically relevant and, if sustained over longer periods and shared by other tissues, could be of clinical and public health relevance for understanding the development of diabetes and obesity.

In such a difficult field of research, limitations are unavoidable and 4 issues deserve consideration. The experimental model compares the effect of an average 3.5-hour difference in sleep duration per day (equivalent to an accumulated sleep debt of 14 hours over 4 days). This is a large difference accrued within a short period, and it is not clear to what degree the effects seen under such conditions would be reproduced if sleep deprivation were less severe but extended over a longer period. It is possible that acute and chronic sleep loss may exert different effects on metabolism as observed with the effect of sleep on human performance (12).

Substantial interparticipant variation in the effect was reported in the 7 persons studied. Although this does not affect statistical power, it may indicate differences in susceptibility.

Prolonged sleep restriction combined with disruption of circadian cycles exerts adverse metabolic effects on resting metabolic rate and postprandial plasma glucose and insulin secretion (13). However, how well the protocol used in this study controlled for circadian cycles is unclear.

Finally, Broussard and colleagues do not specify whether they standardized participant exposure to light. Whether the additional 4 hours per night that participants spent awake during periods of sleep deprivation were spent in darkness could influence the observed results. Thus, it is difficult to assess whether the reported differences were due to reduced sleep or to extended periods of light exposure. Duration of exposure to light (or darkness) regulates hormone secretion (14) and, at least in animal models, affects the sensitivity of adipocytes to sympathetic stimulation and induces changes in lipolysis (15, 16).

## EDITORIAL

sleep...



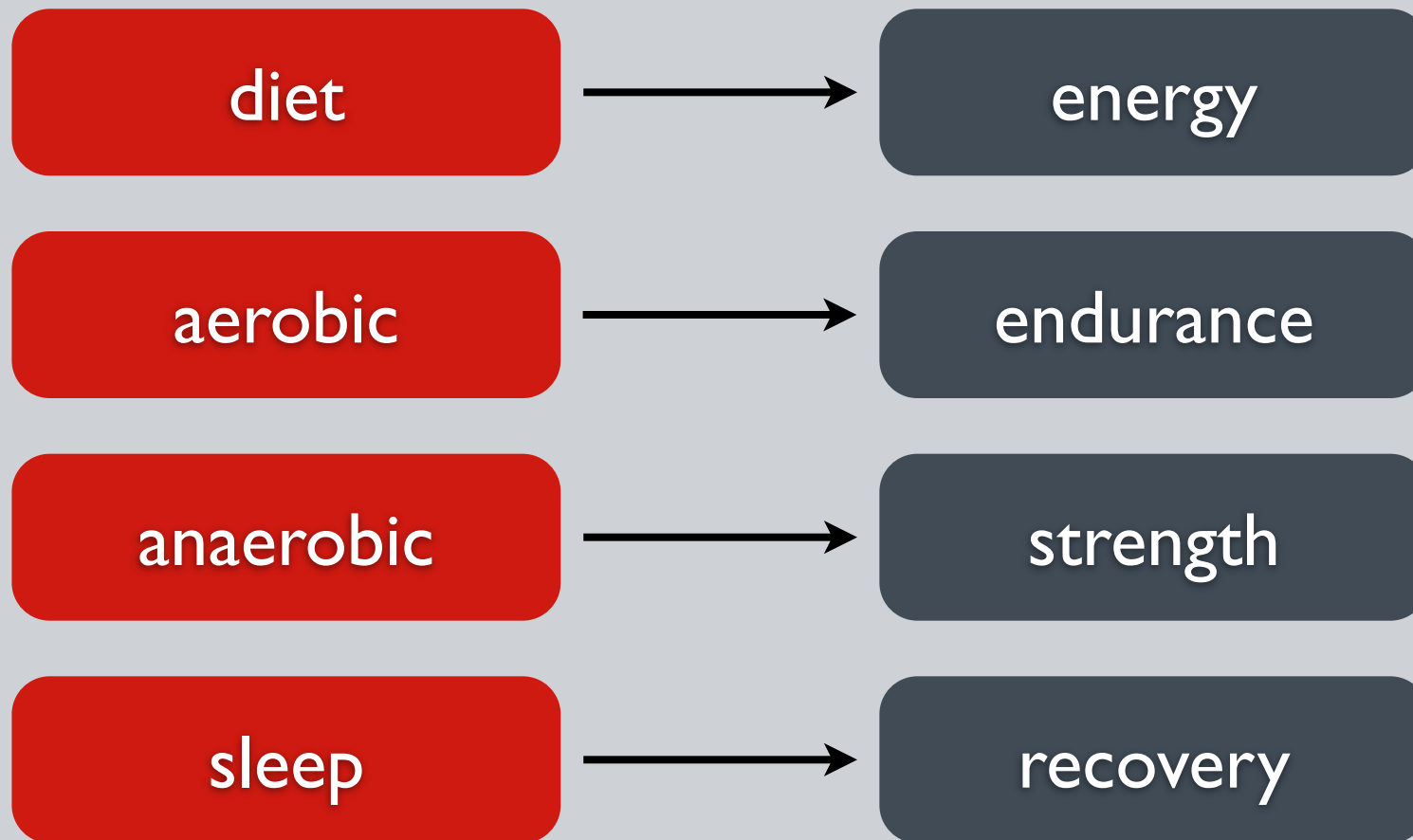


goals



fitness

# SUMMARY



vector

fitness

# THE FUTURE

@rich\_kilmer