INE INSTITUTE OF NUTRITIONAL ENDOCRINOLOGY

INSULIN RESISTANCE SOLUTION PRACTITIONER TRAINING

Fitness

With Dr. Ritamarie Loscalzo

Medical Disclaimer: The information in this presentation is not intended to replace a one-on-one relationship with a qualified health care professional and is not intended as medical advice. It is intended as a sharing of knowledge and information from the research and experience of Dr. Ritamarie Loscalzo, drritamarie.com, and the experts who have contributed. We encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional.

Exercise

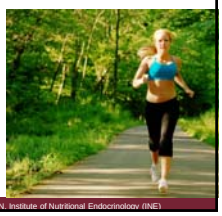
- ✓ Trained muscle clears glucose more effectively than untrained muscle.

- ✓ Trained muscle is more efficient at using glucose and reducing insulin than untrained

Exercise

✓30 seconds of full intensity exercise elevates growth hormone more than 30 minutes of moderate intensity aerobics, and it stays elevated for 90 minutes.

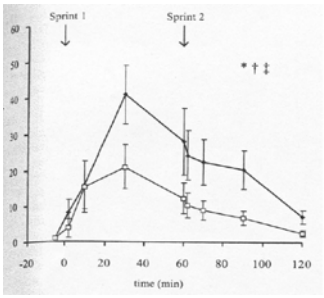
✓Repeated exercise bouts during the day, well-apart in time, produce significantly greater total GH secretion.*



** Kanaley JA, Weltman JY, Veldhuis JD, Rogol AD et al. Human growth hormone response to repeated bouts of aerobic exercise. J Appl Physiol. 1997 Nov;83(5):1756-61*

Effect of Exercise on Growth Hormone

- ✓ Upper curve is a 30-second all-out burst (sprint)
- ✓ Lower curve is 30 minutes of aerobics
- ✓ Notice the amount of GH secreted is higher with 30-second sprint
- ✓ A second sprint at 60 minutes does nothing to GH
- ✓ The optimal timing of sprints (bursts) appears to be 120 minutes



Growth Hormone Response to Intense Exercise

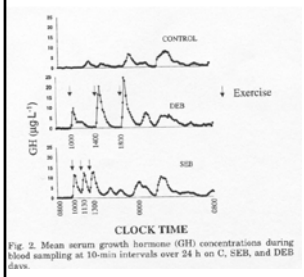


Fig. 2. Mean serum growth hormone (GH) concentrations during blood sampling at 10-min intervals over 24 h on C, SEB, and DEB days.

SEB = **sequential exercise bouts:** new exercise bout was begun at the 90-minute mark after the previous one

DEB = **delayed exercise bout:** new exercise periods were spaced at 4-hour intervals

GH = **growth hormone:** intensity increased with each successive bout when spaced 4 hours apart

NOTE: GH response to exercise is blunted in obesity

Walking and Aerobic Exercise: Effects on Insulin Resistance

- ✓ Walking does not appear to have much of an effect insulin resistance
- ✓ Aerobic exercise decreases cardiac risk through mechanisms other than insulin regulation
- ✓ 30-40 minutes of moderate walking reduces heart disease risk by 40% and cancer risk by about 35%, almost as much as more intense aerobic exercise
- ✓ The benefits of walking exercise are equal or better when it is broken up into multiple 10-minute sessions than if engaged in all at once

Exercise Guidelines for Blood Sugar Control

- ✓ Do **30-second all-out bursts** such as a sprint, bike sprint, or short bout with weights **every 4 hours** or so to maximize growth hormone.
- ✓ Do a short session of **burst exercise 2 hours after the evening meal** to clear nutrients from the blood and prepare for fat burning during sleep.
- ✓ Add **30-60 minutes of walking** most days at a "brisk but comfortable" pace.
- ✓ Adding 10- to 15-minute **intervals of brisk walking are easier** to work into a busy schedule and are just as effective as longer walks.

Growth-Hormone Maximizing Exercise Routine

- ✓ 2-3 minute burst-type exercise in AM on rising
- ✓ No-carb or lo-carb breakfast
- ✓ 30-60 minutes of walking during day in 10-15 minute segments if need be
- ✓ Add sprints to normal jogging, swimming, cycling routines
- ✓ 2-minute burst-type exercise at 2 hours after evening meal: reliably lowers after meal blood glucose by 20-40 points
- ✓ No food after exercise or before bed