

UTILIZING HIGH INTENSITY INTERVAL TRAINING TO ENHANCE COMMUNITY HEALTH

Maximizing time to promote greater
Community health benefits

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WHAT IS HIGH INTENSITY INTERVAL TRAINING ? (H.I.I.T TRAINING)

H.I.I.T TRAINING IS AN EXERCISE FORMAT WHICH UTILIZES BURSTS OF HIGH ACTIVITY LEVELS IN COMBINATION WITH LOWER OR RESTING LEVELS TO MAXIMIZE TRAINING TIME MANAGEMENT

H.I.I.T IS A CONCEPT WHICH ORIGINATED FROM A SCANDENAVIAN TRAINING METHOD - FARTLEK TRAINING, OR “SPEED PLAY”

MULTIPLE FORMS OF H.I.I.T TRAINING ARE PRESENTLY AVAILABLE

HOW IS H.I.I.T TRAINING PERFORMED ?

IN H.I.I.T. TRAINING, PARTICIPANTS UTILIZE TIMED BOUTS OF HIGH INTENSITY FOLLOWED BY LOWER OR RESTING PHASES

METHODS INVOLVE ALTERED RATIOS OF WORK TO REST PHASES WITH REPLICATION OF THE ACTIVITY BETWEEN 3 - 10 TIMES

ALTHOUGH INTENSITY LEVELS WERE ORIGINALLY INTRODUCED AS A PERCENTAGE OF VO₂ MAX, PRACTICAL MEASUREMENTS ARE BASED ON A PERCENTAGE OF MAXIMAL HEART RATE

HEART RATE LEVELS SHOULD BE 75-90 % DURING THE WORK PHASE AND BETWEEN 50-65% DURING THE RESTING PHASE

WHAT ARE SOME OF THE H.I.I.T TRAINING FORMATS PRESENTLY PERFORMED ?

H.I.I.T IS MOST ACKNOWLEDGED AS AN AEROBIC FORM OF TRAINING HOWEVER, IT CAN BE PERFORMED USING RESISTANCE FORMATS

THE AEROBIC COMPONENT OF H.I.I.T IS DERIVED FROM THE CONSISTANCY OF MOTION MAINTAINED THROUGHOUT THE PROGRAM

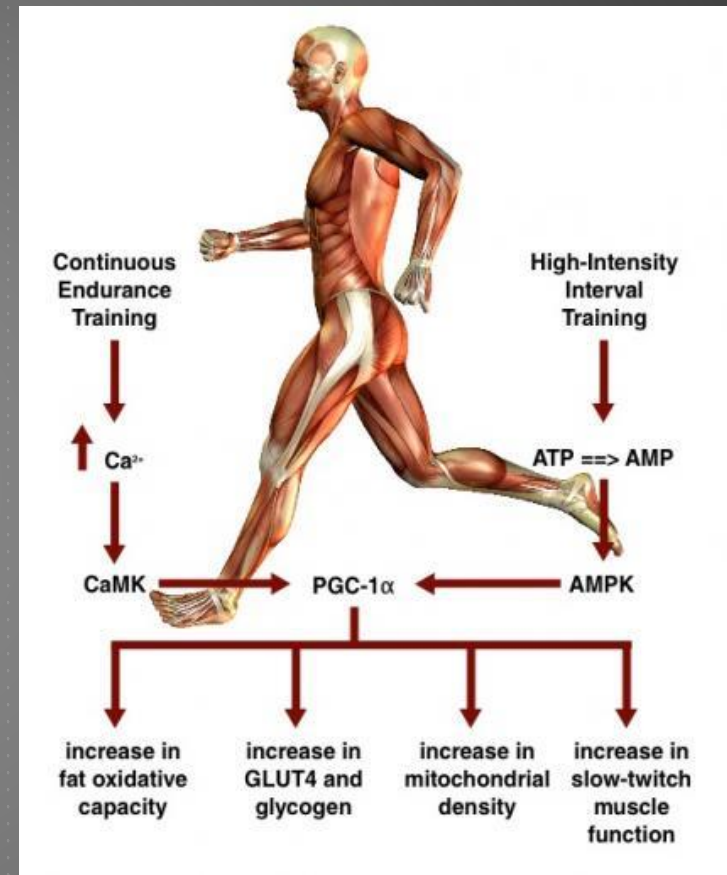
COMMERCIALY RECOGNIZED PROGRAMS SUCH AS P90X, CROSS-FIT, INSANITY, BODY PUMP AND TABATA UTILIZE H.I.I.T FORMATTING

HOW DOES H.I.I.T TRAINING WORK ?

H.I.I.T PLACES THE BODY IN A RAPIDLY ADAPTIVE STATE, CAUSING IT TO ALTER TRADITIONAL BIOCHEMICAL PHYSIOLOGY

THE ADAPTIVE STRESS PROMOTED BY HIGH INTENSITY INTERVAL TRAINING SIGNALS CREATION AND RELEASE OF PGC-1 α (Peroxisome proliferator-activated receptor- γ co-activator)

PGC-1 α STIMULATES MITOCHONDRIAL BIOGENESIS AND MUSCLE TISSUE REMODELING TO A COMPOSITION WHICH IS MORE OXIDATIVE THAN GLYCOLYTIC



SOURCE : LAURSEN 2010

WHAT ARE THE ADVANTAGES OF H.I.I.T ?

- **H.I.I.T TRAINING INCREASES THE HEART'S STROKE VOLUME**
In a 3-day, 8 week study comparing H.I.I.T vs. Endurance, a 10% improvement over Endurance training was seen in H.I.I.T participants (Helgerud, et al, 2007, Wisloff, et al 2009)
- **HEART MUSCULARITY & CONTRACTILITY INCREASE**
Left ventricle heart mass increased by 12% and cardiac contractility by 13% - increases similarly seen in Endurance training (Siordahl, et al , 2004)
- **MAXIMAL AEROBIC CAPACITY (VO2 MAX) BECOMES HEIGHTENED**
VO2 max increases were greater in H.I.I.T participants vs. Endurance training - 15% vs. 9%, respectively. (Daussin et al, 2008)

WHAT ARE THE ADVANTAGES OF H.I.I.T ?

- **AUGMENTED MITOCHONDRIAL DENSITY AND BIOGENESIS**
Mitochondrial increases in size and number have been shown as one of the primary adaptations of H.I.I.T training (Gibala, 2009)
- **INCREASED FAT OXIDATION & REDUCED CARBOHYDRATE OXIDATION**
In two different studies the oxidative enzymes responsible for assisting in ATP production had vast increases with H.I.I.T training (Burgomaster, et al, 2008) (Perry et al, 2008)
- **AMPLIFIED EXCESS POST-EXERCISE OXYGEN CONSUMPTION (EPOC)**
Post-exercise oxygen consumption was shown to be higher with H.I.I.T training than traditional endurance programs (LaForgia et al, 2006)

HOW CAN WE ENHANCE COMMUNITY HEALTH THROUGH H.I.I.T. TRAINING ?



HOW CAN WE ENHANCE COMMUNITY HEALTH THROUGH H.I.I.T. TRAINING ?

- **H.I.I.T PROGRAMS MAXIMIZE THE OXIDATIVE ENZYMES UTILIZED BY THE BODY TO PROMOTE THE CONVERSION OF FAT INTO ENERGY, THEREBY REDUCING THE LEVELS OF SUBCUTANEOUS FAT – IMPROVING BODY FAT %**
- **H.I.I.T TRAINING IMPROVES CARDIO VASCULAR FUNCTIONING THROUGH INCREASED HEART MUSCULARITY & CONTRACTILITY REDUCING THE POTENTIAL FOR HEART DISEASE**
- **CAPILLARY DEVELOPMENT INCREASES , IMPROVING OXYGEN DISTRIBUTION TO CELLS AND LOWERING BLOOD PRESSURE**

HOW CAN WE ENHANCE COMMUNITY HEALTH THROUGH H.I.I.T. TRAINING ?

- **H.I.I.T PROGRAMS REDUCE THE NECESSARY ACTIVITY TIME, ALLOWING MORE INDIVIDUALS TO BE ABLE TO PARTICIPATE**
- **H.I.I.T PROGRAMS REQUIRE NO SPECIAL MATERIALS SO DEVELOPING H.I.I.T PROGRAMS COST LITTLE TO NOTHING**
- **H.I.I.T PROGRAMS CAN BE DONE ANYWHERE**
- **ALL AGES & LEVELS OF FITNESS CAN DO H.I.I.T PROGRAMS THE KEYS TO THE PROGRAM ARE INTENSITY AND TIME**

DESIGNING A H.I.I.T. TRAINING PROGRAM FOR COMMUNITY HEALTH DEVELOPMENT

H.I.I.T TRAINING CAN BE DONE IN AS LITTLE 15-20 MINUTES, MAKING IT A SUPERB TOOL FOR USE IN INSTITUTIONAL SETTINGS

TRAINING PROGRAMS CAN BE UTILIZED WITHOUT INVESTMENT

RUNNING PROGRAMS, CALISTHENICS (BODY WEIGHT EXERCISES) CAN BE DEVELOPED INTO A COMMUNITY H.I.I.T PROGRAM

UTILIZING A PROTOCOL WITH A SPECIFIC WARM-UP / COOL DOWN AND 1:1 EXERCISE RATIO (SAME HIGH / LOW TIME), 3X A WEEK, BENEFICIAL ADAPTATIONS CAN BE DEVELOPED BY PARTICIPANTS

DESIGNING A H.I.I.T. TRAINING PROGRAM FOR COMMUNITY HEALTH DEVELOPMENT

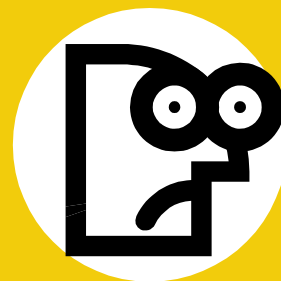
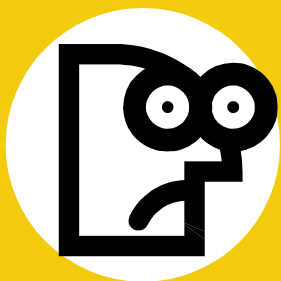
AS INDIVIDUAL AND GROUP ADAPTATION OCCURS, H.I.I.T PROGRAMS CAN BE ALTERED BY TIME AND RATIO

ALTHOUGH THE DESIGNATED TIME FOR THE PROGRAM MAY NOT CHANGE, THE TIME FOR EACH EXERCISE BOUT CAN BE INCREASED (90 SEC. VS. 60 SEC. BOUTS), OR THE RATIO BETWEEN INTENSITIES ALTERED TO INCREASE THE ADAPTIVE NEED (2:1 RATIO VS. 1:1)

ALTERATIONS OF TIME OR RATIO STILL ALLOW FOR THE CONTROL OF A GROUP FORMATTED PROGRAM WITHIN THE SAME TIMEFRAME

DESIGNING A H.I.I.T. TRAINING PROGRAM FOR COMMUNITY HEALTH DEVELOPMENT

FITNESS	WARM	HIGH	LOW	RATIO	#	COOL	TOTAL
UNFIT	5 MIN.	30 SEC.	90 SEC.	1:3	3-5X	5 MIN.	15-20 MIN.
LOW	5 MIN.	30 SEC.	1 MIN.	1:2	4-6X	5 MIN.	15-20 MIN
AVERAGE (GILBALA)	3 MIN.	1 MIN.	1 MIN.	1:1	5-7X	3 MIN.	15-20 MIN
HIGH (TABATA)	3 MIN.	1 MIN.	30 SEC.	2:1	6-8X	3 MIN.	15-20 MIN
ATHLETIC	3 MIN.	90 SEC.	30 SEC.	3:1	5-7X	3 MIN.	15-20 MIN



It's QUESTION TIME!!

CITATIONS

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