



# ACADEMIC PROGRAM



# MASTER BODYBUILDING AND FITNESS DEGREE

## MODULE I

### Topic 1: Basic concepts of the skeletal muscle system

- Structure and function of the skeletal system (bones)
- Structure and function of the articular system
- Structure and function of the muscular system
- Musculoskeletal adaptations to weight training

### Topic 2: General Physiology

- The Joint system
- The Bony system
- The Muscle Physiology
- The Energy Metabolism
- The Endocrine system

### Topic 3: Exercise Physiology

- The Cardiovascular System
- Physiological Responses and Adaptations to Weight Training
- Proprioception and Neuromuscular control during exercise
- Safe Prescription for Special Populations
- The safety of weight training: hemodynamic factors and cardiovascular incidents

### Topic 4: Musculoskeletal injuries

- Injury Types
- Risk factors associated with Weight Training Injuries
- Types of Musculoskeletal Injuries in Weight Training
- Prevention of Injuries and Recommendations

### Topic 5: Basic concepts of anthropometry

- Definition
- Body size
- Anthropometric Characteristics of the Body
- Implications of Anthropometrics in Movement Analysis

## MODULE II

### Topic 6: Kinesiological foundations of bodybuilding

- Muscular functions
- Classification of muscles
- Factors that affect muscle function
- Muscle Imbalances
- Tables of muscle actions
- Specific movements and muscles for each joint
- Movement-specific joints and muscles

### Topic 7: Biomechanics foundations of Weight Training

- inematics: the description of the movement
- Kinetics: Analysis of forces
- Applications of biomechanics in weight training

- Work and muscle power
- Curves
- Classification of Weight Training exercises
- Mechanical conditions for the development of strength and hypertrophy
- Resources used in weight training
- Training machines; joint biomechanics and bodybuilding methods

### Topic 8: Kinesiology and biomechanics applied to Weight Training exercises

- Applied kinesiology
- Main bodybuilding exercises

## MODULE III

### Topic 9: Basic nutrition

- Metabolism and energy balance
- Carbohydrates
- Proteins
- Fats
- Vitamins, minerals and water.
- Nutritional pyramid for performance
- Natural anabolic nutrition
- Basic sport nutrition
- The supplements
- The 20 best foods
- The recovery

## MODULE IV

### Topic 10: Training cycles and programs

- Training systems for beginners, Intermediate level and Advance level
- The perfect warm up
- Stretching
- Basic breathing and muscle relaxation techniques
- Practical training principles
- Cardiovascular training

## MODULE V

### Topic 11: Personalized physical activity

- Aerobic Training
- Activities that meet the demands of aerobic work
- Starting over
- Establishing a Program
- Anaerobic training
- List of exercises

## MODULE VI

### Topic 12: Abdominal: Anatomy and Structure

- Anatomy of the abdominal wall
- Muscles worked on abdominal exercises

- Thoracolumbar Fascia: Architecture and Structure
- Overview and Morphologic aspects of the Abdominal Muscles
- Anatomy of the Vertebral Column
- Planes and Axis of Motion of the Spine
- Anatomy of the vertebrae with emphasis on the Lumbar spine
- Joints of the Vertebral Column
- Intervertebral Disc structure and Zygapophyseal Joint Structures
- Ligaments of the Vertebral Column

### Topic 13: Abdominal: Kinesiology and Biomechanics

- Kinesiology considerations about the Abdominal Exercises
- Biomechanics of the Lumbar Spine
- Application of Biomechanics on Abdominal Exercises
- Machines and devices used for Abdominal Exercises: Myths and Truth
- Abdominal Exercises for fat Loss
- Kinesiology and Biomechanics Analysis from 45 abdominal exercises
- Abdominal exercises during pregnancy
- Specific Stretch Exercises

## MODULE VII

### Topic 14: Organization and administration of a gym

- Procedures for the gym's day to any operations
- Check list of gym rules and policies

- Check list for staff requirements
- Responsibilities of the staff
- The visual communication
- Guaranteed of quality
- Continuous improvement
- Check list for maintenance Clients file
- Check list for first-aid equipment
- Check list for overall gym preparedness
- Check list for staff preparedness
- Maintenance

### Topic 15: The safety training

- Preparation of the physical structure of the weight training room
- Emergency preparedness
- Checklist for first-aid equipment

### Topic 16: Questionnaires

- Physical Fitness Questionnaire
- Waist / Hip Ratio
- Risk factors
- Anthropometric evaluation
- Training program goals
- Test Par-Q & you
- Health Questionnaire
- Questionnaire for a training program

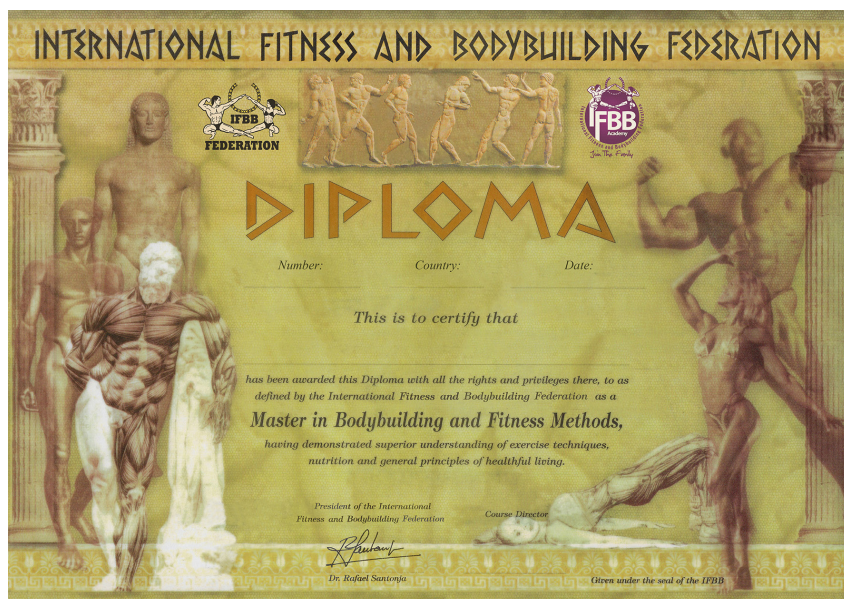
## BONUS

### The anti-doping in sport

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# MASTER COURSE FITNESS TRAINING AND CROSS TRAINING DEGREE

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- Applied kinesiology
- Main bodybuilding exercises

## MODULE III

### Topic 9: Basic nutrition

- Metabolism and energy balance
- Carbohydrates



- Proteins
- Fats
- Vitamins, minerals and water.
- Nutritional pyramid for performance
- Natural anabolic nutrition
- Basic sport nutrition
- The supplements
- The 20 best foods
- The recovery

## MODULE IV

### Topic 10: Neurological bases of functional training

- Central Nervous System
- Peripheral nervous system
- Autonomic nervous system
- Neuromuscular control, proprioception and balance.
- Proprioceptors
- Ruffini Corpuscle
- Pacinian Corpuscle
- Golgi Tendinous Organ
- Muscle receptors
- Touch Receivers

### Topic 11: Middle zone or Core

- Abdominal Zone (Abdominal Rectum, Internal Oblique, External Oblique, Lumbar Square,
- Lumbar area
- Exercises: (Short Swim, Open and Close, Hunting Dog, Tantrum, Lumbar Hyperextension, Abdominal Crunch, Leg Raises, Obliques On The Floor, Front Plank or Bridge, Side Plank, Bosu)

### Topic 12: Methodology of the main exercises in functional training

- Functional training (Cardiovascular / Respiratory Resistance, Resistance (Stamina), Strength, Flexibility, Power, Speed, Coordination, Agility, Balance, Accuracy
- The warming up
- The Training Session (Power, Jump, Throw, Olympic Movements, Transfer, Endurance Force
- The force
- The “Functional” Controversy,
- Cross Training exercises (Squat, bench press, pull-ups, but dead, initiation of Olympic weightlifting, jerk and pup jerk movements, box jump, wheel roll, others)

### Topic 13: Personalized physical activity

- Aerobic Training
- Activities that meet the demands of aerobic work
- Exercise
- Intensity
- Low Intensity Zone
- Moderate Intensity Zone
- Moderate / High Intensity Zone.
- High Intensity Zone
- Cardiovascular Training Guide
- Rest
- Starting over
- Establishing a Program
- Program: Basic Conditions
- Asphalt
- Free running track
- Cross Country
- Grass
- Sand
- Anaerobic training
- Anaerobic Training Program
- Weight Training Program for First Weeks
- Warming up
- Structure
- Stretching
- Method
- Composition of stretching routine
- Muscular and respiratory relaxation
- Basic Relaxation Technique
- Breathing technique
- Questionnaires
- Waist / Hip Ratio
- Medical history
- Health Questionnaire
- General information
- Physical Fitness Questionnaire
- Health and conditioning records

## MODULE V

### Topic 14: The science of revitalization

- Introduction
- The science of revitalization
- Life expectancy
- Age: Synonymous Of Chronic Disease?
- Aging
- Anabolism-catabolism
- Hormonal secretions

- Work activity
- The Ideal Graph

### Topic 15: Symptoms of aging

- Dehydration
- Water quality
- Aging of the Central Nervous System
- Morphological changes
- Changes in Tissues
- Functional Changes
- Loss of Bone Density
- Cartilage Aging
- Loss of lean muscle mass
- The muscle
- Morphological alterations
- Structural Alterations
- Metabolic Aging
- Neuromuscular disorders
- Muscle aging

### Topic 16: Anti-aging medicine and technology

- Anti-Aging Medicine And Bioengineering
- Non-Aggressive Technologies: Prevention
- The principles of anti-aging nutrition

## MODULE VI

### Topic 17: Introduction to pedagogy

- Pedagogy: Communication (General and specific objectives; communication is not Easy; Obstacles to Active Listening; elements of verbal communication; Teaching - Learning and Progression Process)
- Media (foundations, processes, communication elements, different ways of elaborating messages and their pedagogical use)

## BONUS

- The anti-doping in sport

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INTERNATIONAL FEDERATION OF BODYBUILDING AND FITNESS



# MASTER FITNESS COACH & CROSS TRAINING DEGREE

## CERTIFICATION

Let it be known that the IFBB Academy has confirmed that

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has successfully completed the examinations required to obtain this academic program of Master Fitness Coach & Cross Training Degree and as such is entitled to all the honors and privileges of members in good standing.

In testimony whereof the Seal of IFBB is affixed.



Certificate Number:  
Date:



IFBB President

Course Director

# PERSONAL TRAINER

## MODULE I

### Exercise physiology

- Introduction
- Physiological evaluation of physical aptitude
- Systems for obtaining energy
- The physiology of muscle force: general concepts
- Analysis of an athletic movement or gesture
- Anatomic analysis
- Mechanical analysis
- Functional analysis
- Ergometrics
- VO2
- Heart rate
- Lactic acid
- Anaerobic threshold, concept
- Lactate threshold
- The ventilation threshold
- Controlling workloads by application of the thresholds
- Good health and strength training

### Basic weight training

- Training principles
- Different types of force to be applied
- Load notation or load indices
- Adaptation to training
- Anatomical adaptation
- Neuronal adaptation
- The training means

## MODULE II

### Nutrition in personal training

- Natural anabolic nutrition
- Weight Gainer diet
- Diet for losing weight
- Basic Principles of Sport Nutrition
- Most effective Sport Supplements:

- BCAA's
- L-carnitine
- Taurine
- Inosine
- Creatine
- Glutamine
- Other interesting supplements

### Practical nutrition

- Diets
- Athlete shopping list
- Basic cookery for muscles

## MODULE III

### Training cycles and programs

- Training systems for beginners
- Intermediate level
- Advance level
- The perfect warm up
- Stretching
- Basic breathing and muscle relaxation techniques
- Practical training principles
- Cardiovascular training

### Kinesiology

### Description of the essential weight training exercises

## MODULE IV

### Sport marketing

### Questionnaires and physical evaluation:

- The longevity test
- Personal records and work plan
- Physical assessment

## BONUS

### The anti-doping in sport

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# ADVANCED TRAINER

## MODULE I

### Basic concepts of the muscles skeletal system

- The bony system
- The articular system
- The muscular system

## MODULE II

### General Physiology

- The Joint system
- The Bony system
- The Muscle physiology
- The Energy metabolism
- The Endocrine system

## MODULE III

### Physiology of Exercise

- The cardiovascular system
- Physiological responses and adaptations to weight training
- Proprioception and neuromuscular control
- Safe prescription for special populations
- Hemodynamic factors and cardiovascular incidents

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## MODULE IV

### Musculoskeletal injuries

- Injury types
- The three stages of injury
- Equipment risks
- Prevention of Injuries
- Recommendations
- Factors affecting recovery

## MODULE V

### Basic concepts of anthropometry

- Tools used for measurements in corporal size
- Anthropometric characteristics of the body in somatotypes
- Body proportions

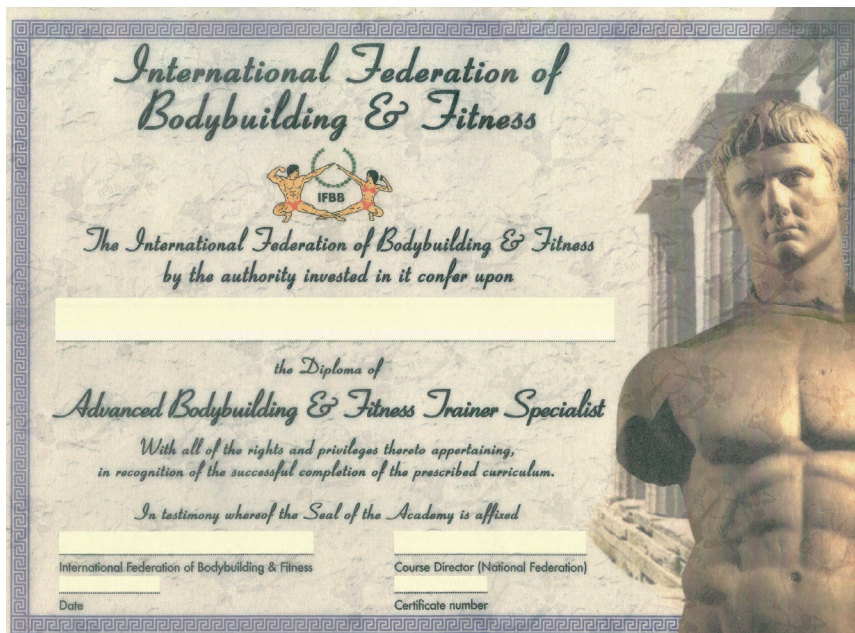
## MODULE VI

### Kinesiological foundations of weight training

- Types of muscular Contraction
- Functional classification of body muscles
- Muscle and their movements
- Movements of specific muscles

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# ABDOMINAL TRAINING PRESCRIPTION SPECIALIST

## MODULE I-ABDOMINAL: ANATOMY AND STRUCTURE

- Anatomy of the abdominal wall
- Muscles worked on abdominal exercises
- Thoracolumbar Fascia: Architecture and Structure
- Overview and Morphologic aspects of the Abdominal Muscles
- Anatomy of the Vertebral Column
- Planes and Axis of Motion of the Spine
- Anatomy of the vertebrae with emphasis on the Lumbar spine
- Joints of the Vertebral Column
- Intervertebral Disc structure and Zygapophyseal Joint Structures
- Ligaments of the Vertebral Column

## MODULE II- ABDOMINAL: KINESIOLOGY AND BIOMECHANICS

- Kinesiology considerations about the Abdominal Exercises
- Biomechanics of the Lumbar Spine
- Application of Biomechanics on Abdominal Exercises
- Machines and devices used for Abdominal Exercises: Myths and Truth
- Abdominal Exercises for fat Loss
- Kinesiology and Biomechanics Analysis from 45 abdominal exercises
- Abdominal exercises during pregnancy
- Specific Stretch Exercises

## BONUS:

- The anti-doping in sport

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# BASIC NUTRITION COURSE

## METABOLISM AND ENERGY BALANCE

- Metabolism
- Energetic Value
- Calories
- Pathways to release energy
- Total daily energy expenditure or Total metabolism
- Baseline metabolism
- Thermic Effect of Food
- Determination of Weight
- Body Composition

## CARBOHYDRATES

- What are they?
  - Monosaccharides
  - Disaccharides
  - Polysaccharides
  - Fiber
  - Glycogen
- The Athletic Performance and Glycemic Index

## PROTEINS

- What are they?
- Functions
- Daily needs
- General intake recommendations
- Difference between proteins
- Supplements

## FATS

- What are they?
- Types of fats
- Metabolism of fats
- Recommendations
- Benefits

## VITAMINS AND MINERALS AND WATER

- What are they?
- What do they do and why do we need them?

## NUTRITION PERFORMANCE PYRAMID NATURAL ANABOLIC NUTRITION

- Keys to metabolism
- Nutritional supplement

## BASIC SPORTS NUTRITION RULES

- Eleven basic rules for sports nutrition

## THE SUPPLEMENTS

- What is a dietary product
- Fifteen approaches for the nutritional evaluation of the supplements
- Nutrients deficiencies in athletes
- Key nutrients and how they work
- Supplements to lose weight
- Supplements to increase bodyweight
- Supplements for women
- Active anti-aging principles

## THE 20 BETTER FOODS THE RECOVERY

- Overcompensation
- The rest
- Feeding the recovery
- Prevention and treatment of the muscle soreness

## BONUS

- The anti-doping in sport

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# ADVANCE NUTRITION COURSE

## MODULE I: FUNDAMENTALS OF NUTRITION

### METABOLISM

- Metabolism/energetic equilibrium
- Energetic value/calories
- Basal and Total metabolism
- Caloric intake
- Calorie expenditure
- Morphotypes
- Ideal weight
- Body mass index
- Adipose tissue: Measurement
- Lipocaliber
- Electrical impedance
- Macro and micronutrients

### CARBOHYDRATES

- Types of carbohydrates and primary sources
- Its use during exercise
- Carbohydrate intake guide
- Glycemic index (GI)
- Glycemic load (GL)
- Athletic form and glycemic index
- Carbohydrate load: what is it and how does it works
- Dietary fiber

### PROTEINS

- What are proteins
- Amino acids
- How they work in the body
- Digestion and absorption
- Protein needs
- Requirements in athletes
- Types of proteins
- Protein supplements
- Ingestion times
- High and low biological quality proteins
- Needs in vegetarian athletes

### FATS

- Types of fats
- Function of fats
- Metabolism of fats
- Fat needs for active people
- Distinguishing between healthy and harmful fats
- Hydrogenated fats: what are they and how to avoid them

### VITAMINS AND MINERALS

- What are they, their functions and needs
- Need for supplementation
- RDAS/DV/DRVS and other terms
- Deficiencies and risk factors in women
- Intake in vegetarians
- Needs in high performance athletes
- Mega-doses
- Toxicity
- Water-soluble vitamins (vitamins C and B)
- Liposoluble vitamins (Vitamins A; E; D; K)
- Minerals (Zinc, Iron, Magnesium, Calcium, Sodium, Potassium, Chrome, others)

### WATER

- Essential component/basics
- Needs

- Role of water in athletic performance
- Water or other liquids
- Electrolytes
- Electrolyte drinks
- Drinking before, during and after exercise
- Drinking water quality

### NUTRITIONAL PYRAMID

- The USA food pyramid: Foundation analysis
- Limitations of the model
- Other pyramids (Asian, Mediterranean, Vegetarian)
- Pyramid of athletic nutrition

## MODULE II: ANABOLIC NATURAL NUTRITION

### BASIC PRINCIPLES

- Natural anabolic nutrition
- The triangular method
- Biochemical individualism
- Synergy
- Complete Nutrition
- Evolutionary dynamics
- Physiological dynamics
- Practice standards of sports nutrition
- Basic principles of nutrition
- Dietary Guidelines to prevent and combat the sensation of fatigue

### MEAL PLANNING

- Things to consider
- Basics of good nutrition
- Selection and purchase of functional foods
- Eating while traveling
- Appetizers and “snacks between meals”
- Burgers and “Fast Foods”
- Dietary bars and nutritious beverage: fast foods of the XXI century
- Preparation of nutritional quick meals
- Eating in a restaurant

### SUPPLEMENTS

- What are they? Dietary product properties
- Supplements to increase lean muscle mass
- Supplements for weight loss, increased energy and endurance
- Supplements for everyday use for overall health and for boosting the immune system
- Supplements to improve the overall function, mood and sleep
- Vitamins, Minerals and antioxidants
- How to choose the right supplement

### FOODS

- The best foods
- Protein sources
- Sources of cereals
- Legumes
- Fruit and Vegetables
- Nuts and seeds
- Basic cooking for athletes
- Cooking eggs, potatoes, meat, chicken, sauces
- The shopping list of an athlete
- Recipes

## VEGETARIAN NUTRITION

- The garden of muscular variety
- Why become a vegetarian?
- Can strength sport and vegetarianism co-exist?
- Example of a vegetarian menu
- Advice for becoming vegetarian
- Sources of protein that are not based on meat
- Value of protein

## MODULE III: NUTRITION FOR FAT LOSS AND NUTRITION FOR INCREASING LEAN MUSCLE MASS NUTRITION FOR FAT LOSS

### NUTRITION FOR FAT LOSS

- Benefits of maintaining adequate levels of fat
- Establishing the present situation to the subject
- Tracking eating habits and analyzing them
- We are what we eat
- Calculating the caloric maintenance level
- Problems of limited caloric intake
- Leptin: the hormonal control of fat levels
- How to exploit its advantages naturally
- Action of leptin
- Regulators of leptin

### DIET REVIEW

- Low Carb diet
- Zone diet
- Dissociated diet
- Atkins diet
- Scarsdale diet
- Mayo Clinic diet
- Other diets

### PLANNING MEALS FAT LOSS DIET:

- Caloric distribution in intakes per day
- Description and composition of meal types
- Examples of such foods and type supplementation;
- The concept of “small frequent meals” and its effectiveness in controlling body fat
- The effect of fiber
- Zigzag diet

### SUPPLEMENTATION FOR FAT LOSS

- Introduction
- Working mechanism of fat burners
- Recent additions to the list: Caffeine, Calcium, Green Tea, CLA, Cayenne, Bamboo Leaf
- Phaseolamin
- Chitosan
- Pyruvate
- Hydroxycitric acid

- Ephedra
- Octopamine
- Tyrosine
- Phenylalanine

### NUTRITION FOR INCREASING LEAN MUSCLE MASS

- Nutritional guide for developing muscles
- Muscular macronutrients
- Carbohydrates and glycemic index
- Carbohydrates and muscular growth
- Fats: the good, the bad, the ugly
- Fats and muscular growth
- Protein: the king of muscular growth
- How much protein?
- Protein quality
- Classification of the best sources of protein (fish, wheat, casein, milk, eggs, beef, chicken, pork, soya)

### SUPPLEMENTS TO INCREASE LEAN MUSCLE MASS

- General review
- Creatine (Creatine with HMB, Creatine with carbohydrates, Creatine with phosphate, Creatine with proteins, Creatine with glutamine, The future of creatine, Recommendations for use); Is creatine supplementation safe?
- HMB, ZMA, Glutamine, Taurine, Essential Amino Acids, Vitamin C

### NUTRITION AND EXERCISE

- Schedules nutrition
- Pre training Nutrition
- Nutrition during training
- Post workout Nutrition (Anabolic Recovery)
- Nutrition prior to night rest

### RECOVERY

- The concept of recovery
- The rest
- Fueling recovery
- Prevention and treatment of muscle aches
- Supplements for recovery

### ANTI AGING NUTRITION

- What do we understand by anti-aging?
- Strengthening the immune system
- Improving neuromuscular condition
- Improving cardiovascular health
- Improving state of mind (psychological health)
- Supplementation as a protector against typical illnesses of old age
- Prevention of Alzheimer’s disease

### BONUS:

- The anti-doping in sport

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# FITNESS CHALLENGE TRAINER COURSE

## FITNESS CHALLENGE TRAINING DESIGNING

- Needs Analysis
- Fitness challenge training implementation
- Periodization

## FITNESS CHALLENGE AS A TRAINING METHOD FOR NON-COMPETITIVE PEOPLE

- Fitness Challenge training method
- Warm-up and cool down
- Fitness Challenge program (24 min workout)
- Steel Rank
- Bronze rank
- Silver rank
- Gold rank

## EXERCISES

- Combo exercise
- Lower-body
- Push exercises
- Pull exercises
- Core (Trunk)

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**FITNESS  
CHALLENGE  
COACH**

Be it known that the faculty of the International Federation  
of Bodybuilding & Fitness confirms that

\_\_\_\_\_

has successfully completed the examinations required to obtain this diploma  
as a **Fitness Challenge Coach** and as such is entitled  
to all the honors and privileges of members in good standing.  
In testimony whereof the Seal of the IFBB is affixed.

  
Dr. Rafael Santonja Gómez  
IFBB President

  
Course Director

Number: \_\_\_\_\_  
Date: \_\_\_\_\_  
Country: \_\_\_\_\_