Università degli Studi di Roma "Foro Italico" Public Health Unit

Personalized Health: advanced prevention between wellness and sport

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Multi-factorial model

RISK/PROTECTIVE FACTORS



ENVIRONMENT LIFE STYLES





Multi-HEALTH/factor model

PROTECTIVE FACTORS









ATHLETIC PERFORMANCE WELLNESS

GENETICS



ATHLETIC PERFORMANCE WELLNESS

Black BOX





In February 2001, two papers provided the first detailed look at the nearly complete sequence of the human genome.



Human Genome Project

Prevention

Health Promotion

Wellness

GENETIC AND MOLECULAR ASPECTS OF SPORTS PERFORMANCE

EDITED BY CLAUDE BOUCHARD AND ERIC HOFFMAN



Jan 2011, an IOC medical commission publication

the contribution of specific genes and molecular markers as related to endurance, strength and power, and responsiveness to specific conditioning programs.

Chapter13: genes and endurance performance Chapter14: genes and strength and power phenotypes Chapter15: genes and response to training Chapter17: the ACE gene and performance Chapter18: the ACTN3 gene and human performance Chapter19: mithocondrial DNA sequence variation and performance Chapter 20-21-22: genes, exercise and metabolism and cardiovascular phenotypes



Integrated approach *NBT dedicated volume on Personalised Medicine 2012*



Prevention - Health Promotion - Wellness

Our DB

Muscolo-scheletal HEALTH

Sequences, data, SNPs (Cfr. diapo and video)
Software and output (Cfr. diapo and video)





Romano Spica et al. ACTN3 Genotyping by Real-Time PCR in the Italian Population and Athletes Med. Sci. Sports and Exercise, 2005

Preventive Adapted Physical Activity





<u>Contrasting riskfactors</u> related to sedentary life style <u>Acting positively</u> as an health promoting factor



<u>Muscular movement</u>

APA

involving an energy consumption

Protective Factor

(+) incidence/mortality (-) 1.9 milions death, world



World Health Day

2002 2012

World Health Day 2012 -7 April

"L'attività fisica dovrebbe essere alla base delle abitudini di tutti e perfettamente integrata nella routine quotidiana. "Roberto Bertollini, direttore tecnico dell'OMS Europa Roma, 2002.

National, European Programs ...

Evidence Based Prevention

HYPERTENSION

Torrance B, McGuire CA, Lewanczuk RDNcABET.555 rweight, physical activity and high blood pressure in children: a review of the literature. Vascular health and risk Rana 199, not Manson 3(1): 139 FB. 2008 Strangered With Physical Inactivity and Risk of Type 2. Diabeties in Women ... Diabetes Cara 2007: 30:53 -58 ining in the treatment of SQUIVERTERISTORIE WINNER TO THE AND AND THE PROPERTY OF THE PR Shingand lifestyle rendunturte the Minder the Include on a Mandel And the Art MAG. Bublic Health flon in the incidence of type 2 diabetes lifest vie intervention or methormin. Diabetes, Prevention Program Research Group. N. Engl. J is of randomized controlled trials. search Group. Role of Insume Secretion and Sensitivity in the and be versions times in the set of the constant of the set of the ect of combined exercise training ed study in roommunity-dwelling elderly anronic Nazionale ST+T Salleber and in the standard de Yap aniling 2005: 30 Isal Such Such Encidence and freased anister footows fant falles a sal 1978: Flake, among the community dwelling elderly. Am J Epid 1993: 137: 342-54 Common RF, Wing RR, Edelstein St et al. Effect of weight loss with lifestyle interve The Wing St. Headstring of an an arriver for the wight toss with its style intervention have the style intervention of the style intervention of the style intervention of the style intervention is the style of exercise training. Phys Ther. 1993 Apr; 73(4):254-62; discussion 263-5 Adamsen L, Midigaard J, Rorth M, et al. Feasibility, physical capacity, and health benefits of a multidimensional exercise program for cancer patients undergoing chemotherapy. Support Care Cancer 2003;2:707-716

McNeely ML. Campbell KL. Rowe BH, et al. Effects of exercise on breast cancer patients and survivors: a systematic

- Hypertension
- Diabetes
- Obesity
- cardiovascolar
- Diseases
- Cancer
- POSTURE
- WELLNESS

AESTHETICS

EQUILIBRIUM Axes and Symmetry AESTHETICS











Physical Activity Diet Life Styles

1. Manufacture CGH microarrays





- 4. Scan and analyze
- 3. Hybridize genomic DNA two (2) color





Advanced Molecular Biology...



But, ... Most Sofisticated, Most predictive, Most effective ... Biomarker



Rischio relativo di morte riferito alla WC in soggetti europei. Pischon et al., 2008.

Rischio relativo (uomini)						n
WC (cm)	<86,0	86,0/<91,5	91,5/<96,5	96,5/<102,7	≥102,7	F
rischio normalizzato per BMI	1	1,15 (1,05-1,26)	1,35 (1,22-1,50)	1,63 (1,46-1,83)	2,05 (1,80-2,339	<0,001
Rischio relativo (donne)						p
WC (cm)	<70,1	70,1/<75,6	75,6/<81,0	81,0/<89,0	≥89,0	
rischio normalizzato per BMI	1	1,16 (1,05-1,28)	1,21 (1,09-1,35)	1,46 (1,30-1,64)	1,78 (1,56-2,04)	<0,001







MUSCLE

- Prevention (I, II, III)
- Exercise/Other (HBP, ..)

INDIVIDUAL RESPONSE

Between High Tech and Tradition... ... Same questions new approaches



1. 90. 2. 76.

3. 16. 3. 33.



Editoriale



WikilGIENE

lgiene, prevenzione, promozione della salute

Materiale didattico per i corsi di laurea in Scienze Motorie, su argomenti di Igiene generale ed applicata allo Sport e Attività Motorie



salute

approfondimenti

Paleoigiene

ricerca

Vai

Ricerca

1

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Tesi autovaiu.



Corso di Laurea in Scienze Motorie e Sportive (classe L-22)



Corso di Laurea Magistrale in Scienze e Tecniche delle Attività Motorie, Preventive e Adattate (classe LM-67)



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Corso di Laurea Magistrale in Scienze e Tecniche dello Sport (classe LM-68) QUADERNI SANITARI PER SCIENZE MOTORIE A cura di G. Brandi, G. Liguori, V. Romano Spica

G. Brandi, G. Liguori, Y. Romano Spic

Igiene e Sanità Pubblica per Scienze Motorie

Vol. 1

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Contiene password per approfondimenti e quiz di autoapprendimento su <u>www.Wiklgiene.it</u>

> Antonio Delfino Editore medicina scienze

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