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UNIVERSITÀ di VERONA

MARCIALONGA SCIENCE by research center - Rovereto CeRiSM Mountain Sport Health

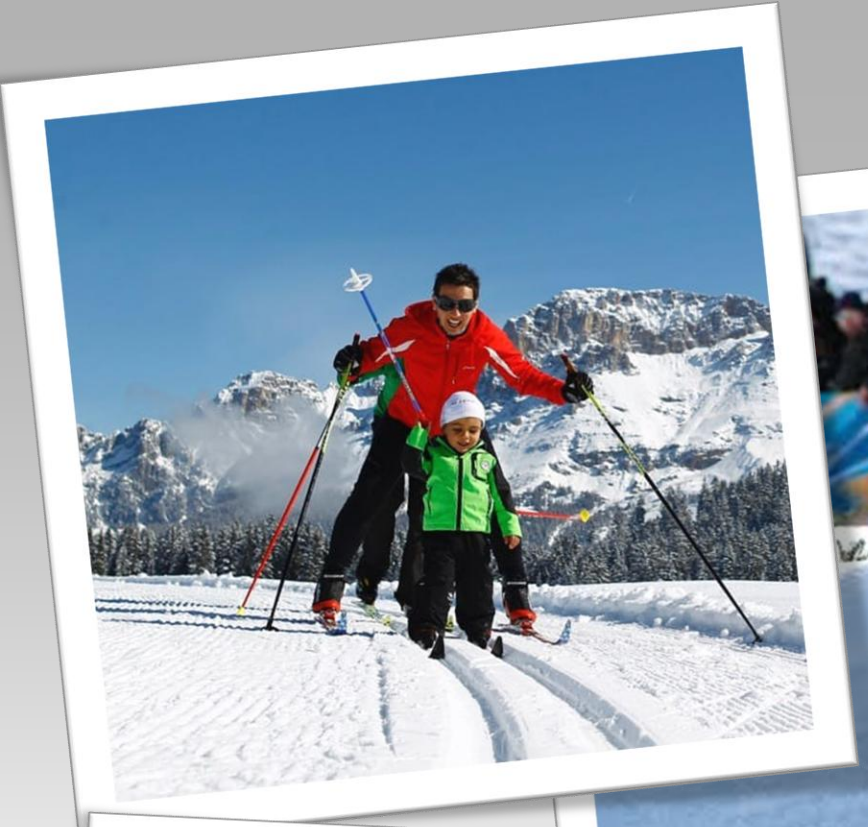
MARCIALONGA

MARCIALONGA coop

MARCIALONGA CRAFT

Dal 2015 su proposta del CeRiSM
Sostenuto e supportato dal Comitato Organizzatore Marcialonga
Ricerche scientifiche su campo riguardanti lo sci di fondo

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Biomeccanica della locomozione umana



Fisiologfia degli ambienti estremi



Fisiologia dell'esercizio e dello sport



Valutazione funzionale dell'atleta





Valutazione funzionale in persone anziane / fragili

Test prodotto per aziende sportive



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ORIGINAL ARTICLE

Cross-country skiing movement factorization to explore relationships between skiing economy and athletes' skills

B. Pellegrini[1,2] | C. Zoppirolli[1,2] | G. Boccia[1,2,3] | L. Bortolan[1,2] | F. Schena[1,2]

Journal of Electromyography and Kinesiology xxx (2013) xxx–xxx
Contents lists available at ScienceDirect
Journal of Electromyography and Kinesiology
journal homepage: www.elsevier.com/locate/jelekin

The effectiveness of stretch–shortening cycling in upper-limb extensor muscles during elite cross-country skiing with the double-poling technique

Chiara Zoppirolli [a,b,*], Hans-Christer Holmberg [c], Barbara Pellegrini [a,b], Diego Quaglia [a,b], Lorenzo Bortolan [a,b], Federico Schena [a,b]

Eur J Appl Physiol (2015) 115:969–979
DOI 10.1007/s00421-014-3078-4

ORIGINAL ARTICLE

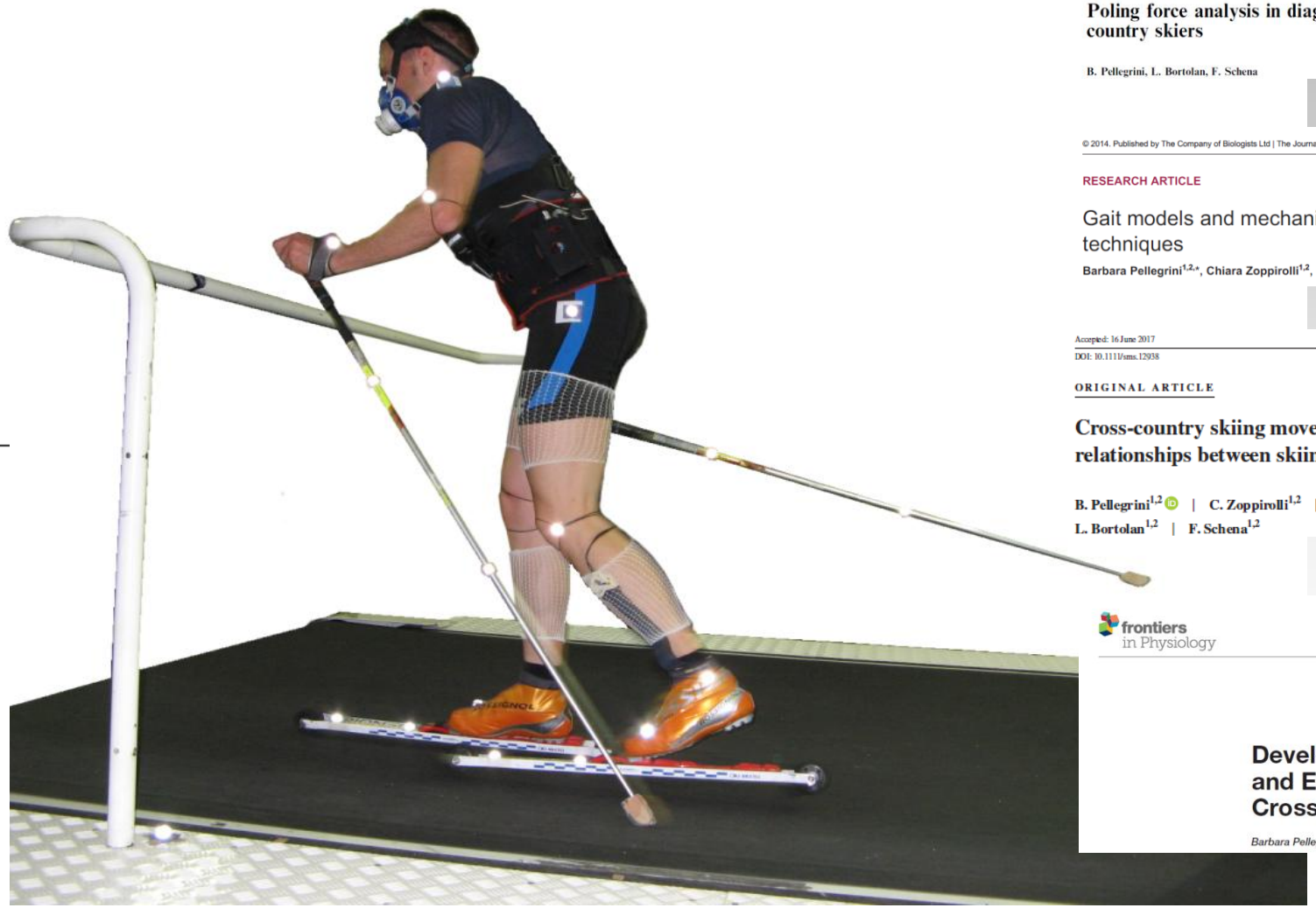
Energetics and biomechanics of double poling in regional and high-level cross-country skiers

Chiara Zoppirolli · Barbara Pellegrini · Lorenzo Bortolan · Federico Schena

Human Movement Science 32 (2013) 1415–1429
Contents lists available at ScienceDirect
Human Movement Science
journal homepage: www.elsevier.com/locate/humov

Biomechanical and energetic determinants of technique selection in classical cross-country skiing

Barbara Pellegrini [a,b,*], Chiara Zoppirolli [a,b], Lorenzo Bortolan [a,b], Hans-Christer Holmberg [c], Paola Zamparo [b], Federico Schena [a,b]



Scand J Med Sci Sports 2011: 21: 589–597
doi: 10.1111/j.1600-0838.2009.01071.x
© 2010 John Wiley & Sons A/S
SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS

Poling force analysis in diagonal stride at different grades in cross country skiers

B. Pellegrini, L. Bortolan, F. Schena

© 2014. Published by The Company of Biologists Ltd | The Journal of Experimental Biology (2014) 217, 3910-3918 doi:10.1242/jeb.106740
THE COMPANY OF Biologists

RESEARCH ARTICLE

Gait models and mechanical energy in three cross-country skiing techniques

Barbara Pellegrini[1,2,*], Chiara Zoppirolli[1,2], Lorenzo Bortolan[1,2], Paola Zamparo[2] and Federico Schena[1,2]

Accepted: 16 June 2017
DOI: 10.1111/sms.12938

ORIGINAL ARTICLE

WILEY

Cross-country skiing movement factorization to explore relationships between skiing economy and athletes' skills

B. Pellegrini[1,2] | C. Zoppirolli[1,2] | G. Boccia[1,2,3] | L. Bortolan[1,2] | F. Schena[1,2]

frontiers in Physiology
PERSPECTIVE
published: 24 July 2018
doi: 10.3389/fphys.2018.00976

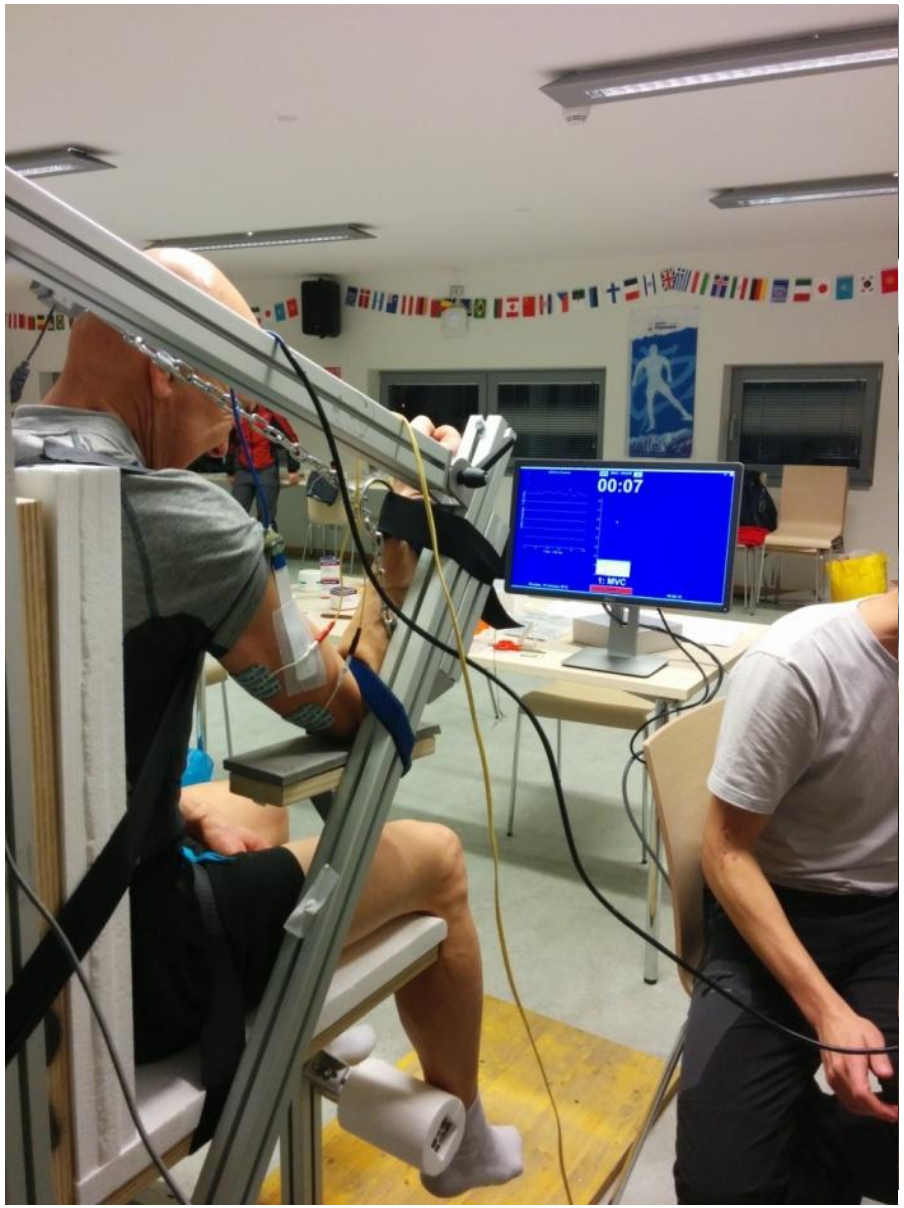
Developments in the Biomechanics and Equipment of Olympic Cross-Country Skiers

Barbara Pellegrini[1,2*], Thomas Leonhard Stöggl[3] and Hans-Christer Holmberg[4,5]

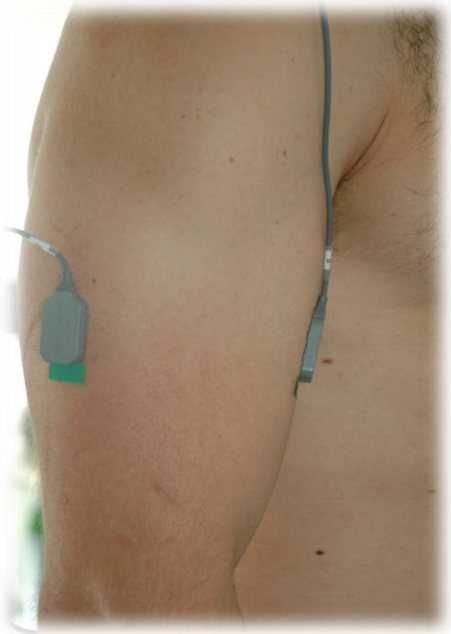
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research center - Rovereto (TN) CeRiSM sport mountain health

















Scand J Med Sci Sports 2017: 27: 1292–1299
doi: 10.1111/sms.12783

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SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS

Changes in upper and lower body muscle involvement at increasing double poling velocities: an ecological study

C. Zoppirolli[1,2], B. Pellegrini[1,2], R. Modena[1,2], A. Savoldelli[1,2], L. Bortolan[1,2], F. Schena[1,2]

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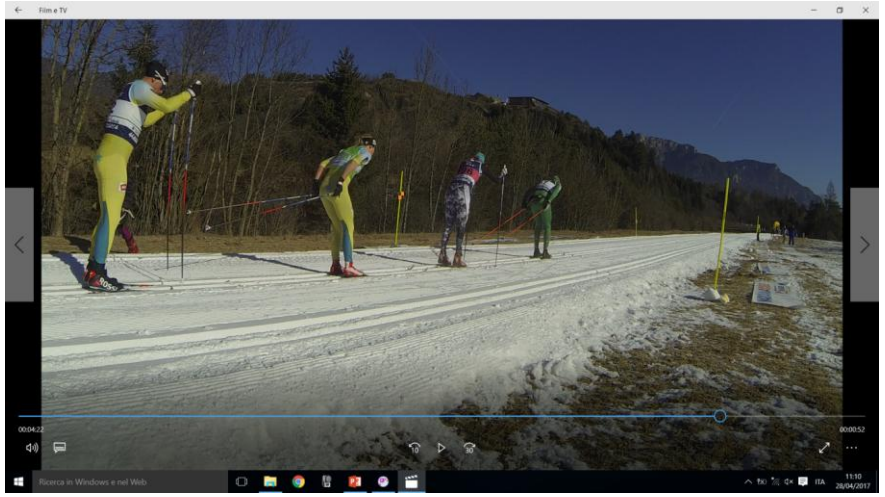
Eur J Appl Physiol
DOI 10.1007/s00421-017-3703-0

ORIGINAL ARTICLE

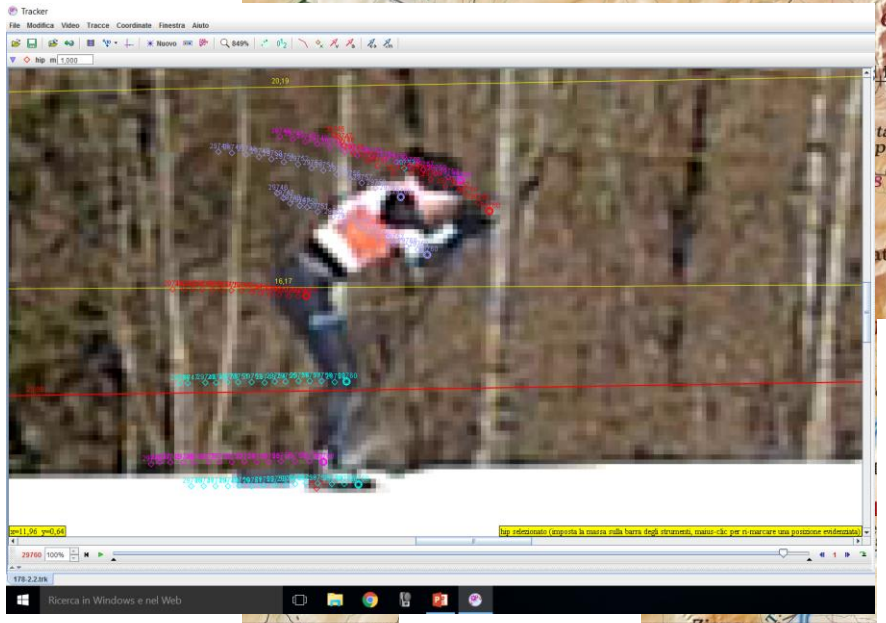
Functional significance of extent and timing of muscle activation during double poling on-snow with increasing speed

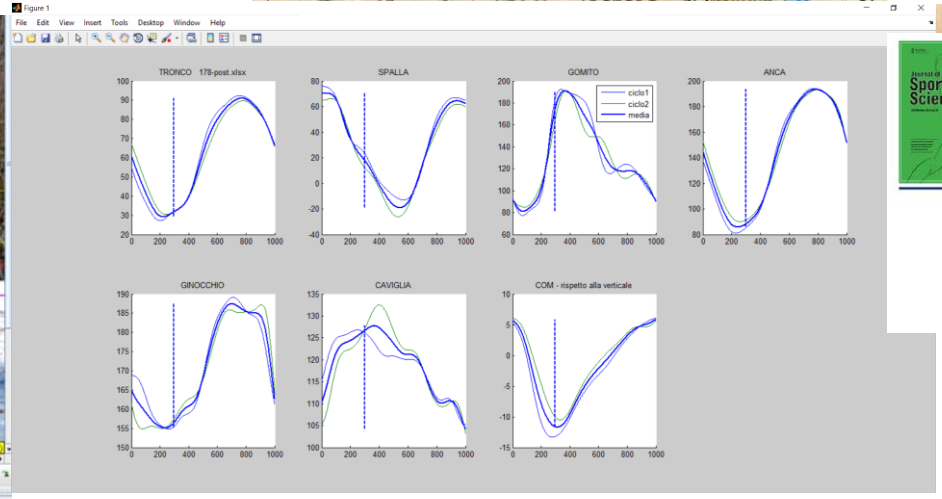
Chiara Zoppirolli[1,2] · Gennaro Boccia[1,2,3] · Lorenzo Bortolan[1,2] · Federico Schena[1,2] · Barbara Pellegrini[1,2]

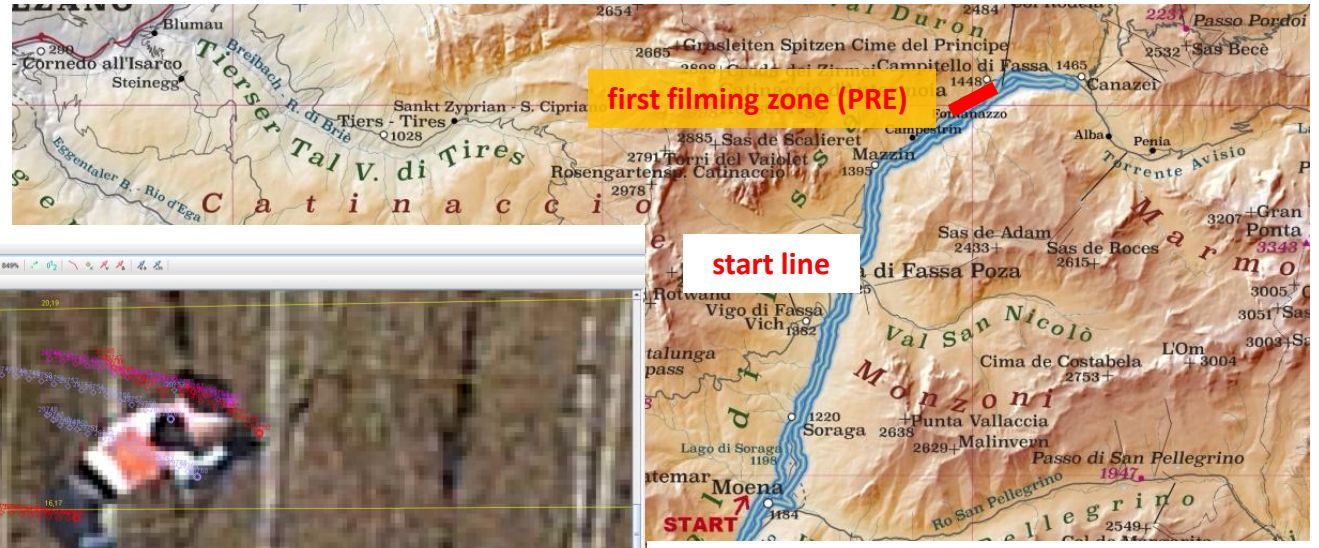
MARCIALONGA SCIENCE by research center - Rovereto CeRiSM Mountain Sport Health











frontiers in Physiology

ORIGINAL RESEARCH
published: 25 July 2018
doi: 10.3389/fphys.2018.00978

Following a Long-Distance Classical Race the Whole-Body Kinematics of Double Poling by Elite Cross-Country Skiers Are Altered

Chiara Zoppirolli[1,2], Lorenzo Bortolan[1,2], Federico Stella[1,2], Gennaro Boccia[3], Hans-Christer Holmberg[4,5], Federico Schena[1,2] and Barbara Pellegrini[1,2]*

Journal of Sports Sciences

ISSN: 0264-0414 (Print) 1466-447X (Online) Journal homepage: https://www.tandfonline.com/loi/rjsp20

Double poling kinematic changes during the course of a long-distance race: effect of performance level

Chiara Zoppirolli, Lorenzo Bortolan, Federico Schena & Barbara Pellegrini

research center - Rovereto (TN) CeRiSM sport mountain health

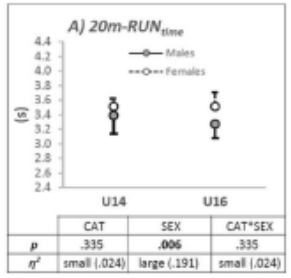
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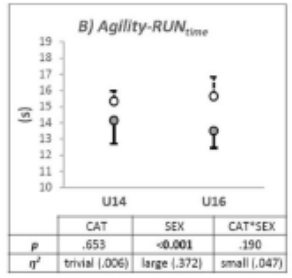




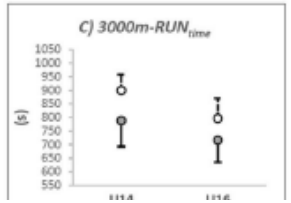


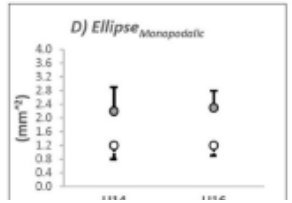


	CAT	SEX	CAT*SEX
p	.335	.006	.335
η^2	small (.024)	large (.191)	small (.024)



	CAT	SEX	CAT*SEX
p	.653	<0.001	.190
η^2	trivial (.006)	large (.372)	small (.047)





European Journal of Applied Physiology (2024) 124:1461–1474
https://doi.org/10.1007/s00421-023-05372-4

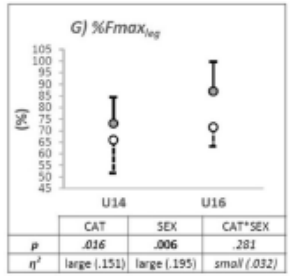
ORIGINAL ARTICLE

Non-specific and ski-specific performance development in peri-pubertal cross-country skiers

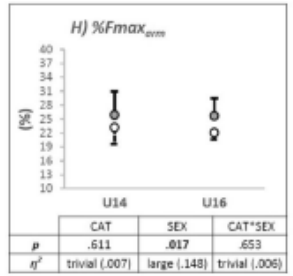
Chiara Zoppirolli[1,2] · Roberto Modena[1,3] · Lorenzo Bortolan[1,2] · Federico Schena[1,4] · Barbara Pellegrini[1,2]

	CAT	SEX	CAT*SEX
p	< 0.001	.010	.096
η^2	large (.292)	large (.169)	medium (.075)

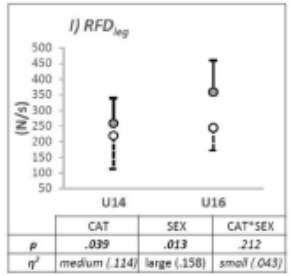
	CAT	SEX	CAT*SEX
p	.058	.015	.253
η^2	medium (.096)	large (.155)	small (.036)



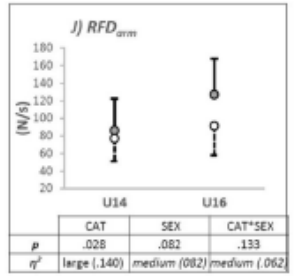
	CAT	SEX	CAT*SEX
p	.016	.006	.281
η^2	large (.151)	large (.195)	small (.032)



	CAT	SEX	CAT*SEX
p	.611	.017	.653
η^2	trivial (.007)	large (.148)	trivial (.006)



	CAT	SEX	CAT*SEX
p	.039	.013	.212
η^2	medium (.114)	large (.158)	small (.043)



	CAT	SEX	CAT*SEX
p	.028	.082	.133
η^2	large (.140)	medium (082)	medium (.062)

MARCIALONGA YOUNG presented by sportful

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SPORTS AND EXERCISE MEDICINE
Open Journal
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Systematic Review

Endurance Masters Athletes: A Model of Successful Ageing and Consequently Reduced Risk for Chronic Disease?

Mike Climstein, PhD, FASMF, FACSM, FAAESS, AEP[1,2,3*]; Joe Walsh, MSc[4]; Tim Heazlewood, PhD[4]; Mark DeBeliso, PhD, FACSM[5]

See discussions, stats, and author profiles for this publication at: https://www.researchgate.net/publication/309369128

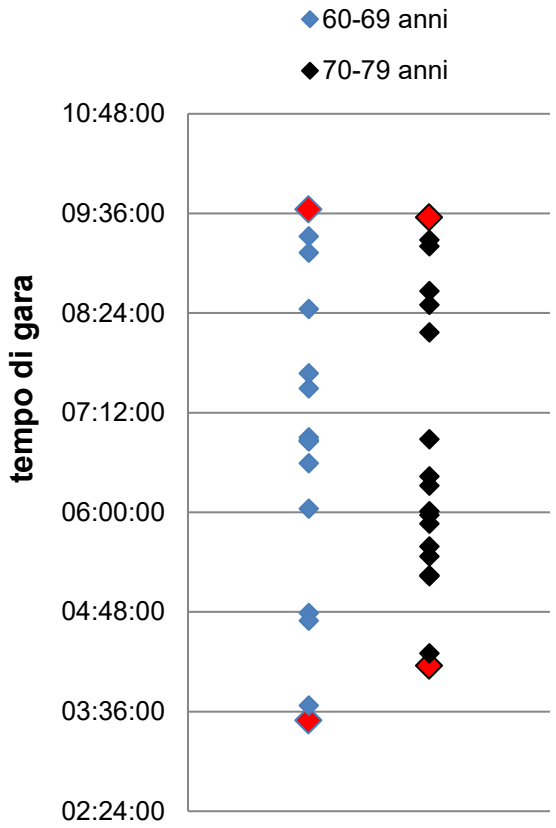
Masters Athletes: Exemplars of Successful Aging?

Article in Journal of aging and physical activity · October 2016
DOI: 10.1123/japa.2016-0050

See discussions, stats, and author profiles for this publication at: https://www.researchgate.net/publication/8996813

Exercise and the Master Athlete – A Model of Successful Aging?

Article in The Journals of Gerontology Series A Biological Sciences and Medical Sciences · December 2003
DOI: 10.1093/gerona/56.11.M1009 · Source: PubMed



SUCCESSFUL AGING
(fenomeno multi-dimensionale)

funzionalità fisica

funzionalità cognitiva

funzionalità sociale

funzionalità psicologica

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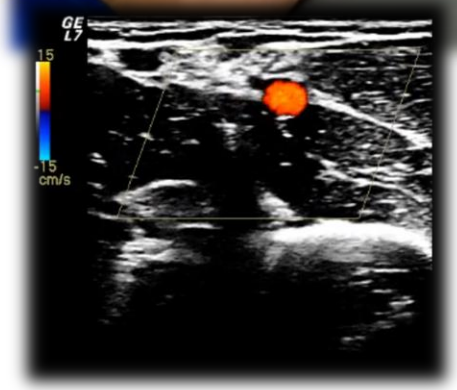






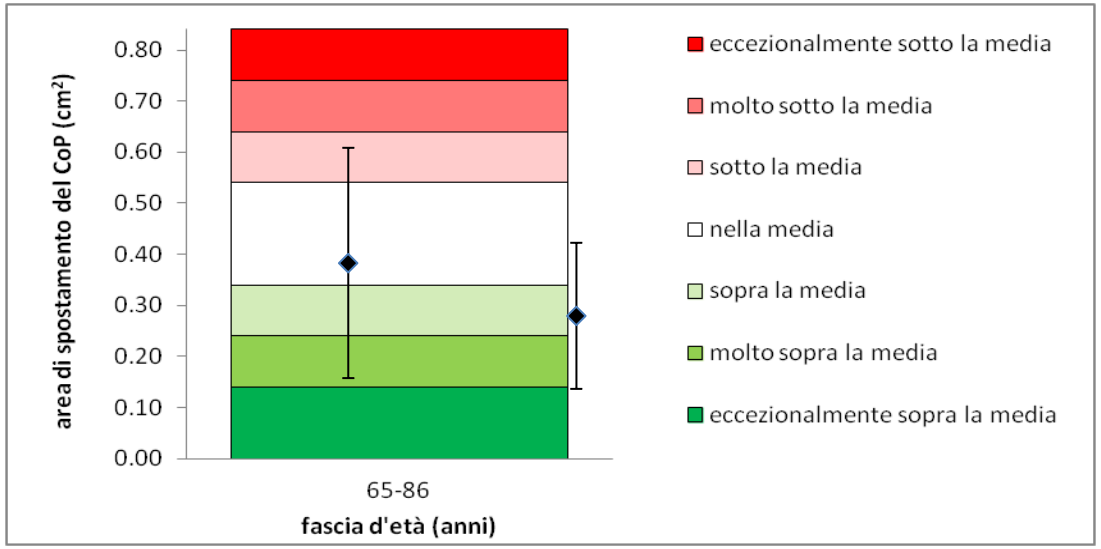


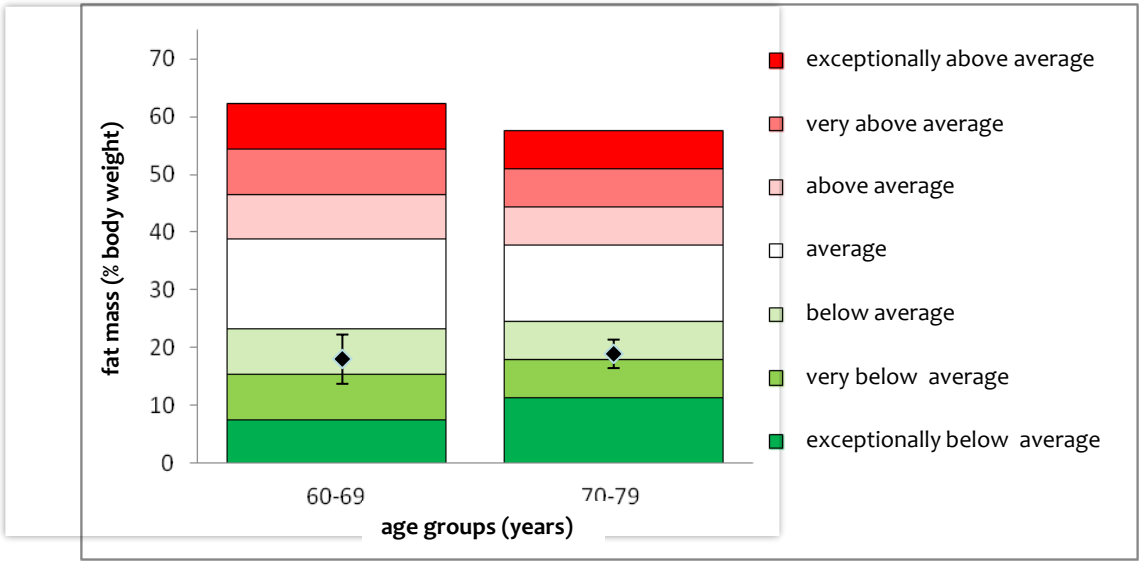


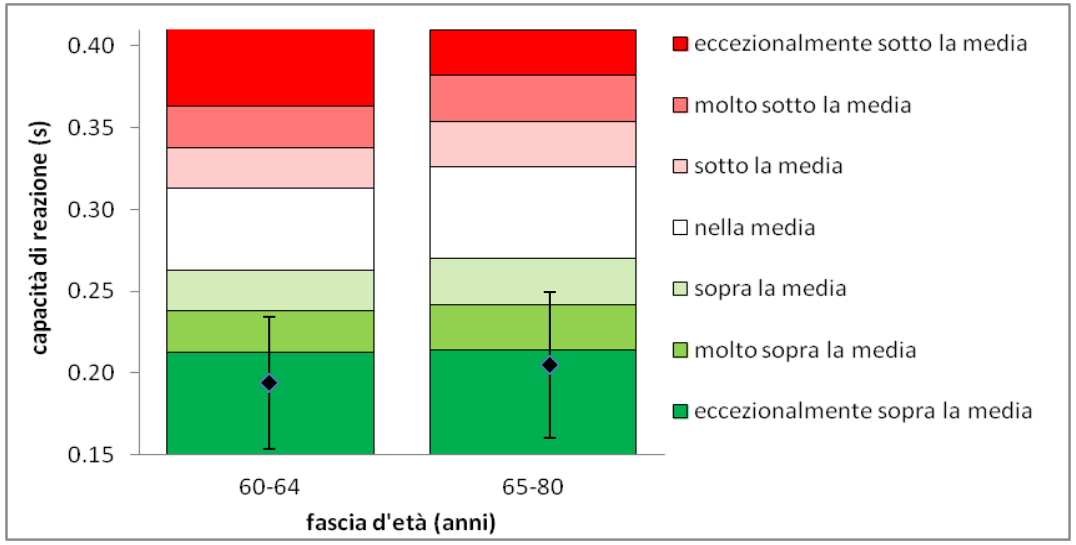


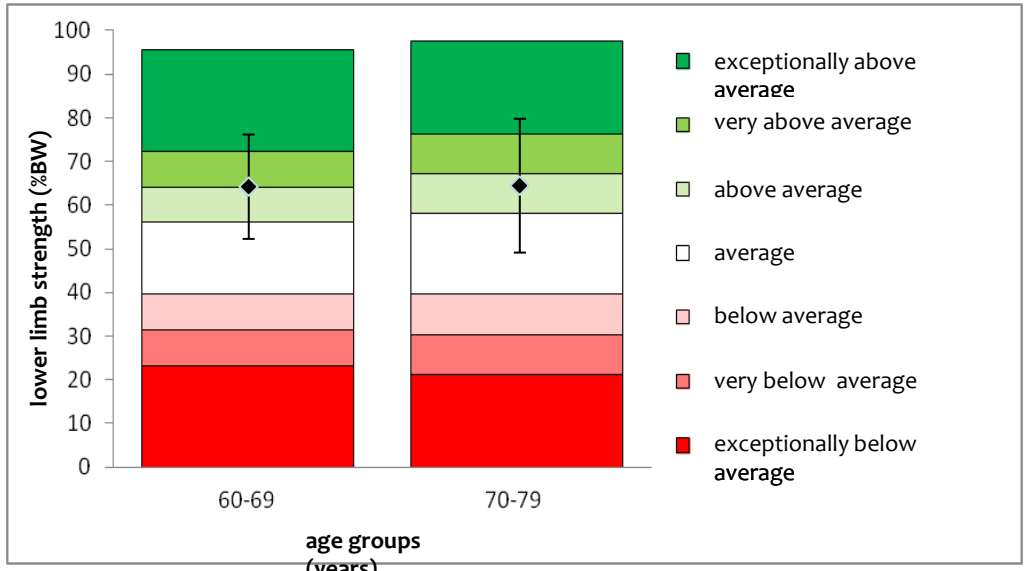




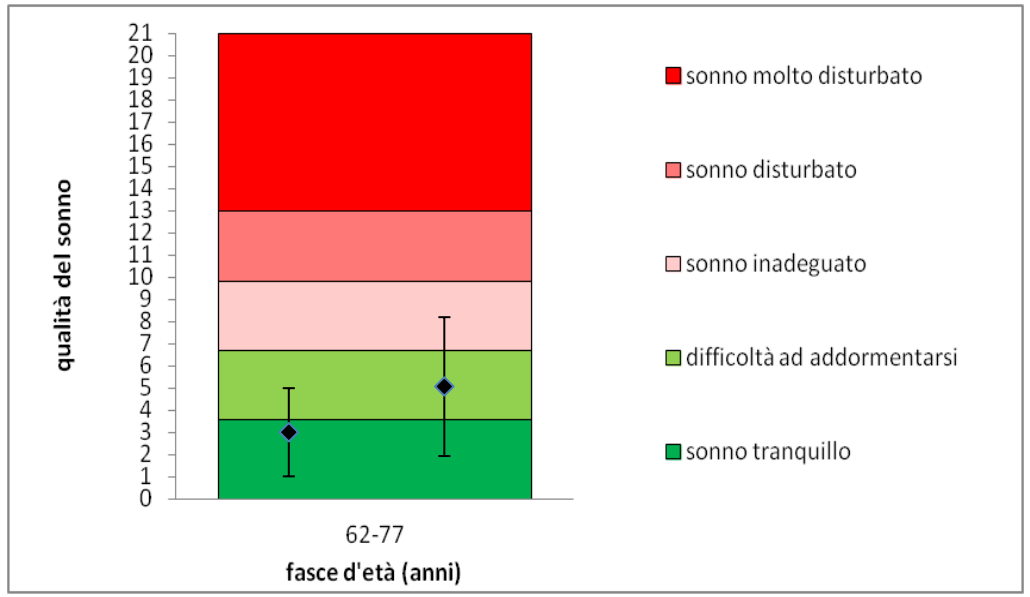

area di spostamento del CoP (cm²)
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
65-86
fascia d'età (anni)
eccezionalmente sotto la media
molto sotto la media
sotto la media
nella media
sopra la media
molto sopra la media
eccezionalmente sopra la media


fat mass (% body weight)
70
60
50
40
30
20
10
0
60-69
70-79
age groups (years)
exceptionally above average
very above average
above average
average
below average
very below average
exceptionally below average

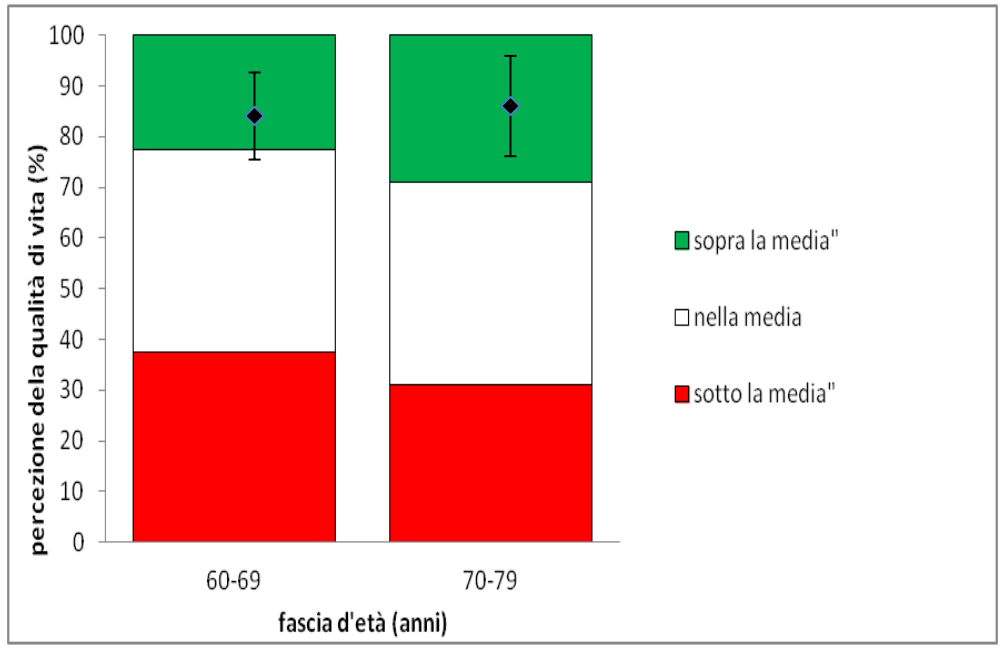

capacità di reazione (s)
0.40
0.35
0.30
0.25
0.20
0.15
60-64
65-80
fascia d'età (anni)
eccezionalmente sotto la media
molto sotto la media
sotto la media
nella media
sopra la media
molto sopra la media
eccezionalmente sopra la media


lower limb strength (%BW)
100
90
80
70
60
50
40
30
20
10
0
60-69
70-79
age groups
(years)
exceptionally above average
very above average
above average
average
below average
very below average
exceptionally below average




qualità del sonno
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
sonno molto disturbato
sonno disturbato
sonno inadeguato
difficoltà ad addormentarsi
sonno tranquillo
62-77
fasce d'età (anni)




percezione dela qualità di vita (%)
100
90
80
70
60
50
40
30
20
10
0
sopra la media"
nella media
sotto la media"
60-69
70-79
fascia d'età (anni)

COMPETITIVE GROUP

MARCIALONGA SCIENCE by CeRiSM research center - Rovereto Mountain Sport Health

INCLUSION CRITERIA

- ✓ athletes over 65
- ✓ participating to 10 edition Marcialonga
- ✓ regular weekly training
- ✓ absence of physical and mental hillness



http://www.newspower.it/

36 male XCS athletes

17 male XCS athletes

ACTIVE GROUP

«Men in shape project»

Municipality of Rovereto



INCLUSION CRITERIA

- ✓ non-athletes over 65
- ✓ participating to fitness courses
- ✓ regular weekly extra physical activity
- ✓ absence of physical and mental hillness

23 male active older adults

17 male active older adults

MATCHING FOR AGE AND PHYSICAL ACTIVITY AMOUNT

Effects of a similar amount of regular non-structured or competitive physical activity across late adulthood: a cross-sectional study

M. Palumbo[1,2*], R. Modena[1], L. Bortolan[1,3], S. Skafidas[1], A. Callovini[1], A. Savoldelli[1,4], F. Gilli[1], A. Fornasiero[1,3], F. Schena[1,2], B. Pellegrini[1,3] and C. Zoppirolli[1,3]

about 6000 METs per week
150–300 min of moderate-intensity aerobic physical activity
75–150 min of vigorous-intensity aerobic physical activity per week

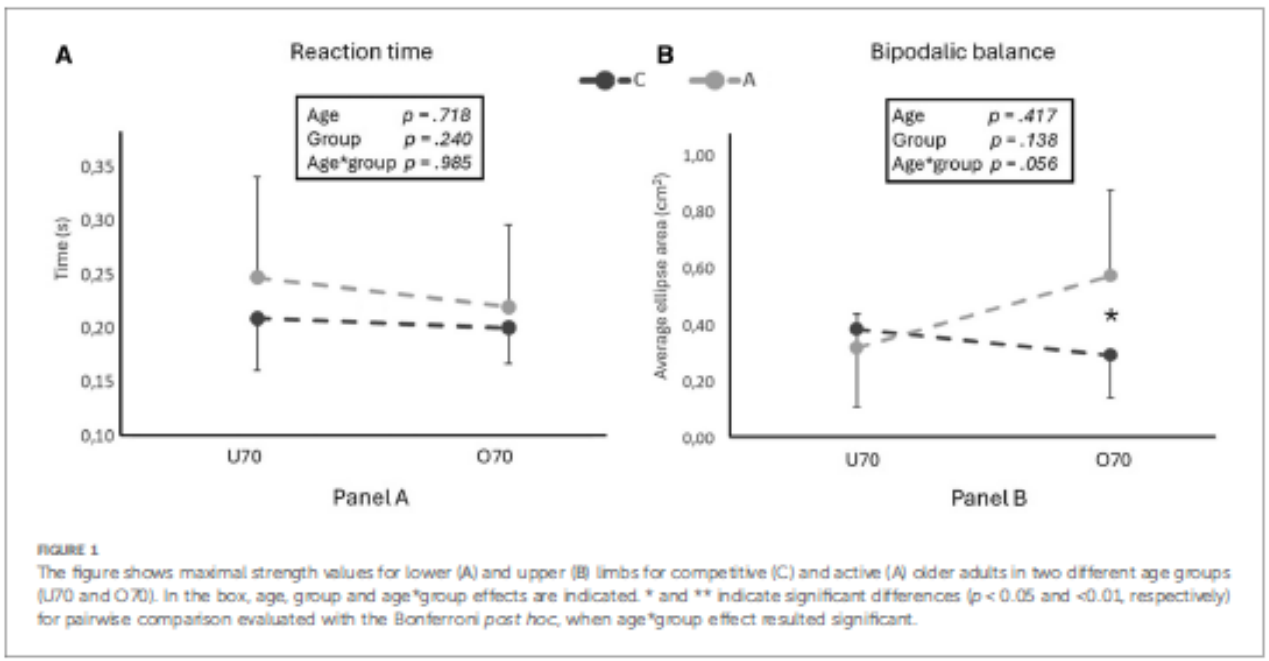
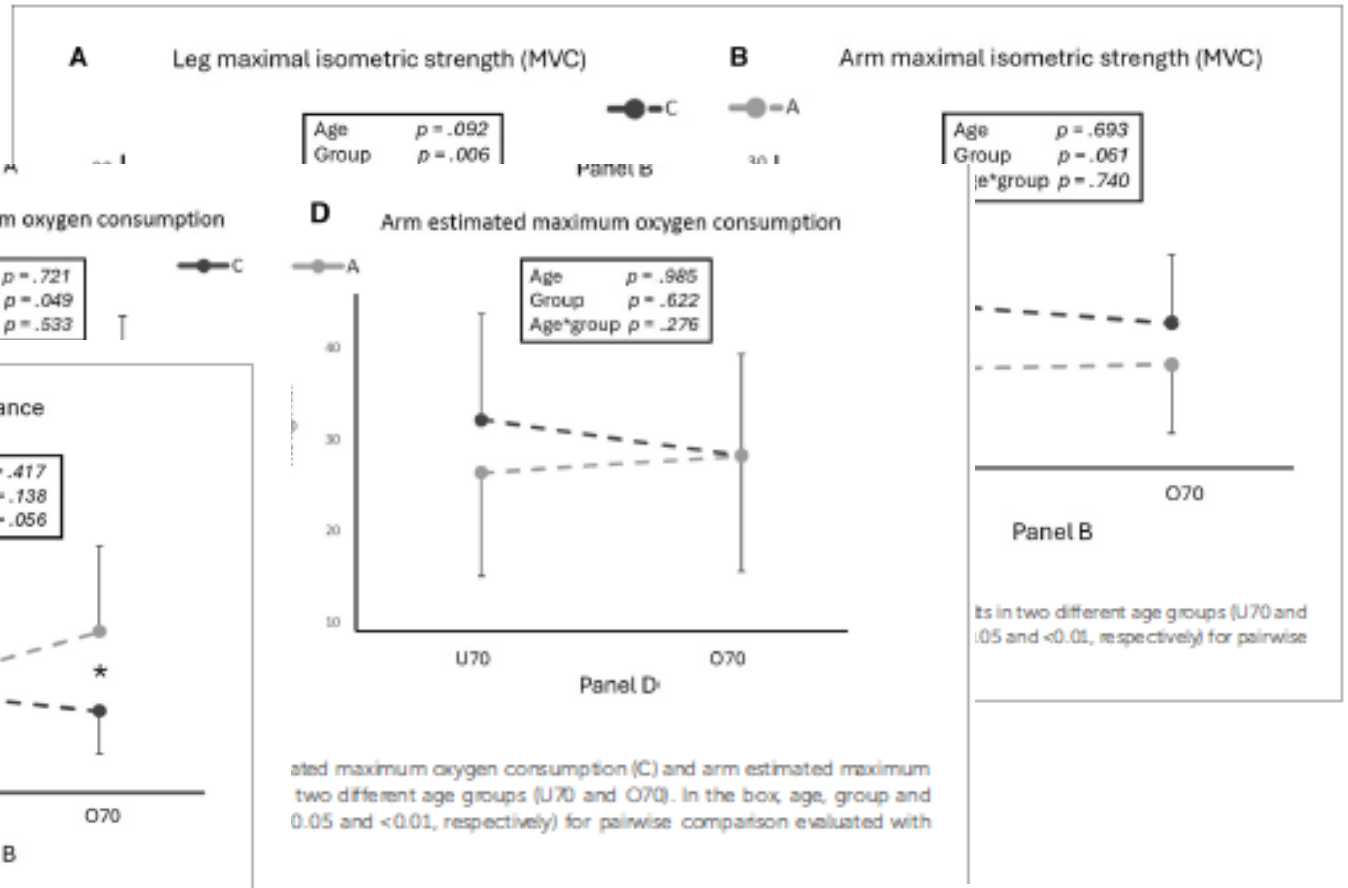


FIGURE 1
The figure shows maximal strength values for lower (A) and upper (B) limbs for competitive (C) and active (A) older adults in two different age groups (U70 and O70). In the box, age, group and age*group effects are indicated. * and ** indicate significant differences ($p < 0.05$ and <0.01, respectively) for pairwise comparison evaluated with the Bonferroni *post hoc*, when age*group effect resulted significant.



Esercitarsi sistematicamente con obiettivi competitivi o di benessere (circa 6000 MET/week)

- ✓ BODY COMPOSITION
- ✓ LEG STRENGTH
- ✓ POSTURAL CONTROL
- ✓ REACTION CAPACITY TO EXTERNAL STIMULI
- ✓ MAXIMAL AEROBIC CAPACITY
- ✓ LIFE QUALITY PERCEPTION
- ✓ SLEEP QUALITY



BETTER VALUES RESPECT TO…

RIDUZIONE EFFETTO AGING
Attenuazione del decline fisico e socio-emotive legato all'invecchiamento

SUCCESSFUL AGING
(multi-dimensional phenomenom)

Geard et al (2017). J Age Physic Act, 25:490-500
Hawkins et a (2003). J Geronth, 58(11):1009-1011

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