



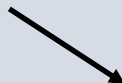
COGNITIVE AND PHYSICAL ACTIVITY RELATED ASPECTS OF CHILDREN ASSOCIATED TO THE PERFORMANCE OF THE CRUNNING MOVEMENT

ANTONINO BIANCO



The Assessment of Physical Fitness

Lab-based approach



Health related

Thank you



The NEW ENGLAND JOURNAL of MEDICINE
Vol. 319 No. 21 PHYSICAL FITNESS AND CARDIOVASCULAR MORTALITY — EKELUND ET AL. 1379

PHYSICAL FITNESS AS A PREDICTOR OF CARDIOVASCULAR MORTALITY IN ASYMPTOMATIC NORTH AMERICAN MEN
The Lipid Research Clinics Mortality Follow-up Study
LARS-GÖRAN EKELUND, M.D., PH.D., WILLIAM L. HASKELL, PH.D., JEFFREY L. JOHNSON, M.S.,
FREDRICK S. WHALEY, PH.D., MICHAEL H. CRIQUI, M.D., M.P.H.,
AND DAVID S. SHEPS, M.D., M.S.P.H. **1988**

JAMA
THE JOURNAL of the American Medical Association
July 27, 1984 Vol 252, No. 4

Original Contributions **1984**

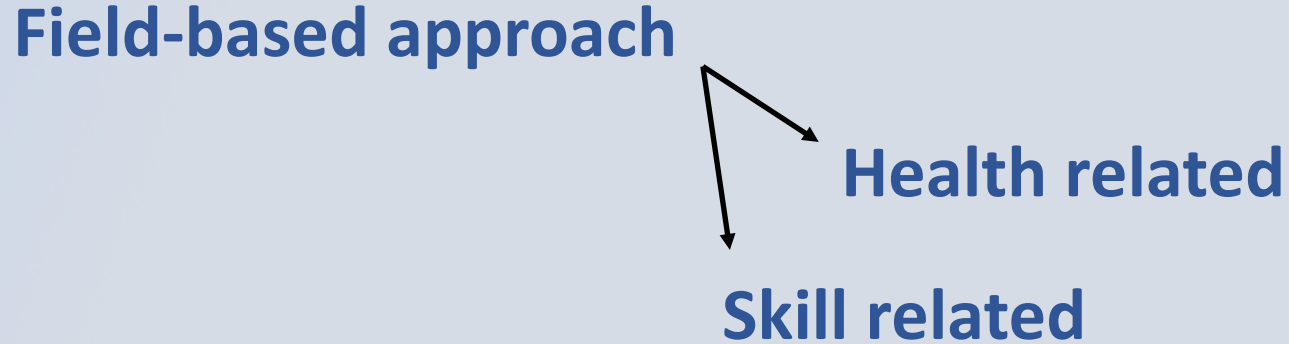
Physical Fitness and Incidence of Hypertension in Healthy Normotensive Men and Women
Steven N. Blair, PED; Nancy N. Goodyear, MSPH; Larry W. Gibbons, MD, MPH; Kenneth H. Cooper, MD, MPH

Prior to 2000s

RATIONALE



The Assessment of Physical Fitness in Youth



Motor Competencies

Motor Skills

Biomotor Abilities

Muscular Strength

Health-Related Fitness Components

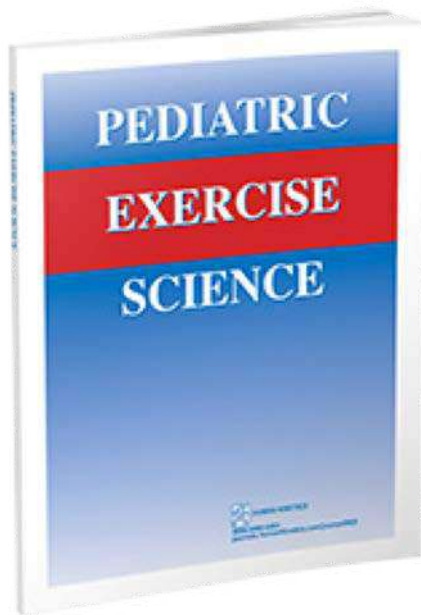
The FitnessGram® test battery assesses health-related fitness components: aerobic capacity, body composition, and muscular strength, endurance, and flexibility. Activity assessments are included for step or minute challenges, physical activity behaviors, and overall activity levels to provide teachers with a variety of ways to promote physical activity to students.



2019. Suminski RR, Blair RI, Lessard L, Peterson M, Killingsworth R. Physical education teachers' and principals' perspectives on the use of FitnessGram. SAGE Open Med.

Doi: 10.1177/2050312119831515.

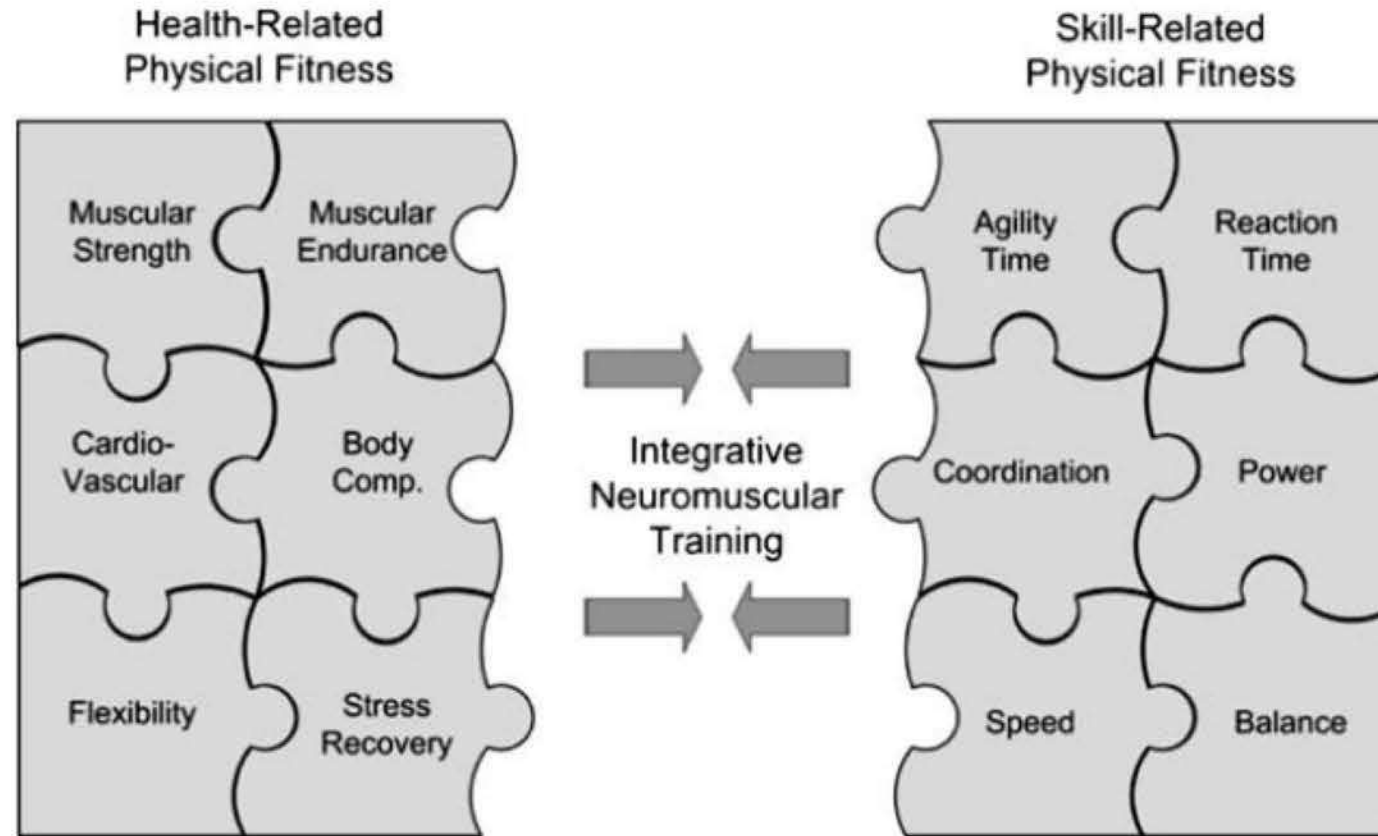
RATIONALE



Tom Rowland



Bareket Falk



Avery Faigenbaum

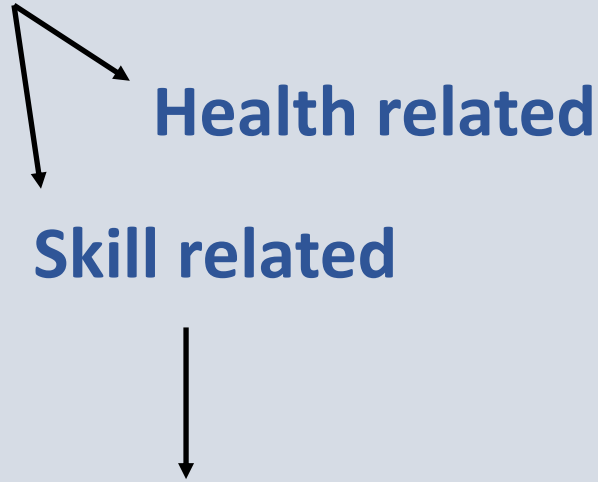
Figure 5: Integrative training model that indicates a focus on the development of fundamental motor skills through activities that consolidate skill and health-related fitness may maximize efficacy of neuromuscular conditioning during preadolescence (Reprinted from Myer GD, Faigenbaum AD, Ford KR, *et al.* When to initiate integrative neuromuscular training to reduce sports-related injuries and enhance health in youth? *Curr. Sports Med. Rep.* 2011;10(3):157–166. Copyright © 2011 American College of Sports Medicine. Used with permission).

RATIONALE

Field-based approach



Francisco B. Ortega



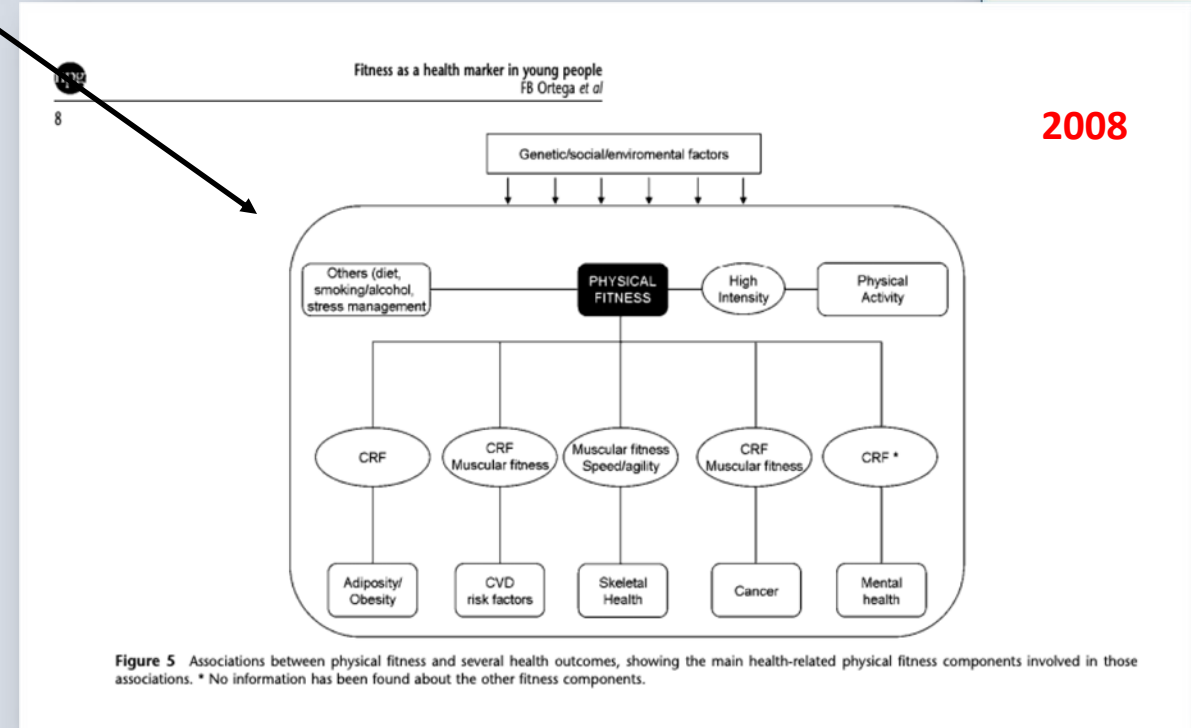
As the name suggests, skill related PF components are crucial in sports as the fundamental basis of performance.

Difficult to define...

In Europe ?



2008



Ortega FB, Ruiz JR, Castillo MJ, Sjostrom M (2008) Physical fitness in childhood and adolescence: a powerful marker of health. *Int J Obes (Lond)* 32: 1-11.

BACKGROUND



It should be noted that although PF is in part genetically determined, it can also be greatly affected by environmental factors primarily in the form of physical exercise.

Conclusions

We conclude that:

- (1) Physical fitness should be considered as a useful health marker already in childhood and adolescence, reinforcing the need to include physical fitness testing in health monitoring systems.
- (2) Physical fitness enhancement, through increases in the time spent in vigorous physical activity and high-intensity training, should be a major goal in current and future public health promotion policies.



Health related PF Components

Nothing new! But!

Ortega FB, Ruiz JR, Castillo MJ, Sjostrom M (2008)

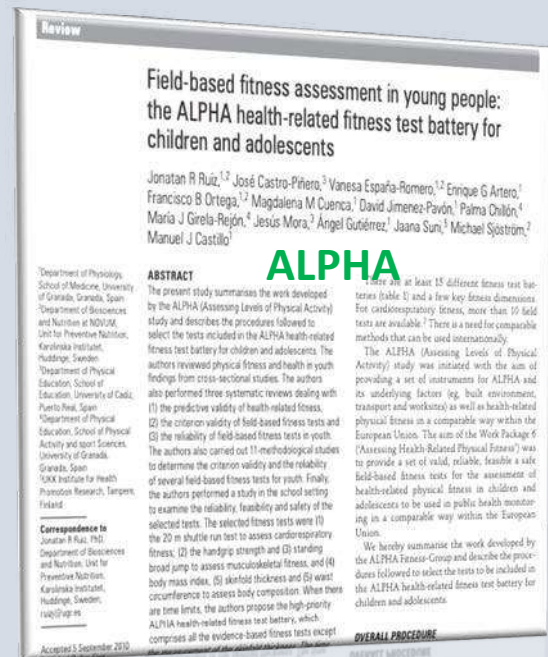
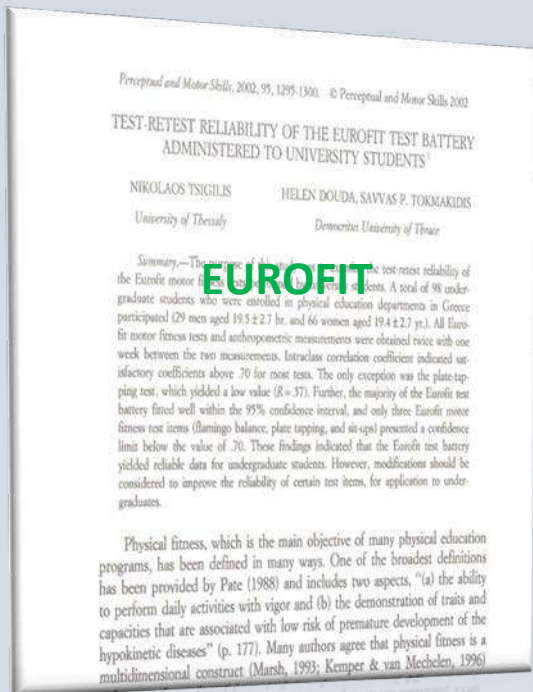
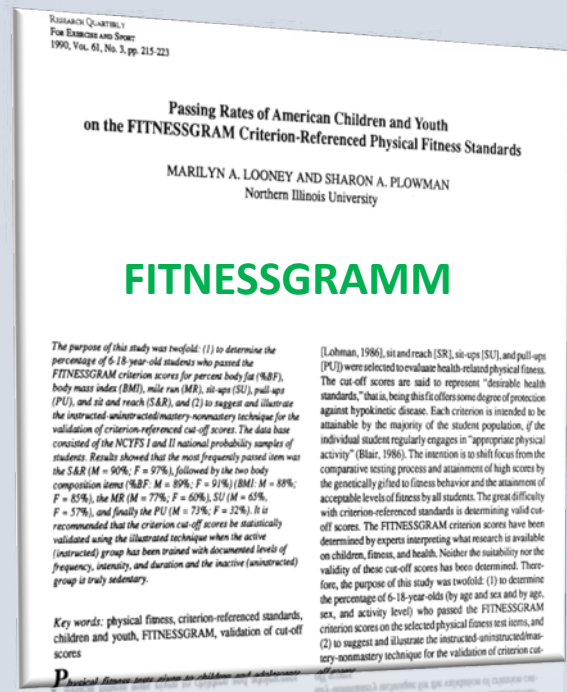
Physical fitness in childhood and adolescence: a powerful marker of health. *Int J Obes (Lond)* 32: 1-11.

BACKGROUND

FIELD-BASED FITNESS ASSESSMENT THROUGH A FITNESS TEST BATTERY



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BACKGROUND



FIELD-BASED FITNESS ASSESSMENT THROUGH A FITNESS TEST BATTERY



[Int J Occup Med Environ Health](#). 2015;28(3):445-78. doi: 10.13075/ijomeh.1896.00393.

A systematic review to determine reliability and usefulness of the field-based test batteries for the assessment of physical fitness in adolescents - The ASSO Project.

[Bianco A¹](#), [Jemni M²](#), [Thomas E³](#), [Filippi AR⁴](#), [Patti A⁵](#), [Paoli A⁶](#), [Palma A⁷](#), [Tabacchi G⁸](#). [J Sports Med Phys Fitness](#). 2016 Nov;56(11):1279-1288. Epub 2015 Oct 16.

Author information

Abstract

The aim of the present review is assessment of health- and skill- using the selected key words reviews/meta-analyses using were included in the qualitative components of physical fitness: handgrip strength test for upper exhaustion for muscular endurance selected and incorporated into it will be adopted within the ASSO schools in order to assess physical fitness.

This work is available in Open Access

A Fitness Index model for Italian adolescents living in Southern Italy: the ASSO project.

[Bianco A¹](#), [Mammìna C²](#), [Jemni M³](#), [Filippi AR⁴](#), [Patti A⁵](#), [Thomas E⁶](#), [Paoli A⁷](#), [Palma A⁸](#), [Tabacchi G⁹](#).

Author information

Abstract

BACKGROUND: Strong relations between objectives of the present investigation were comparing them with international data, and fitness components.

METHODS: A total of 644 school pupils (15-17 years) were assessed using a battery of tests developed within the ASSO project. The tests included: 10-m sprint, 20-m shuttle run, 4x10-m sprint, sit-up to exhaustion, 4x10-m sit-up, broad-jump, sit-up to exhaustion, 4x10-m sit-up, continuous fitness level score (the Fit-Score) and the weight status and CR of the subjects involved in the ASSO project. The Fit-Score was defined as the individual level of fitness: very poor (X<P20), poor (X<P40), fair (X<P60), good (X<P80) and excellent (X<P100).

RESULTS: Boys had higher fitness levels compared to girls. The ASSO-FTB allowed the assessment of physical components. These results could be used to plan appropriate interventions.

CONCLUSIONS: The ASSO-FTB allowed the assessment of physical components. These results could be used to plan appropriate interventions.

[Ital J Pediatr](#). 2019 Mar 5;45(1):32. doi: 10.1186/s13052-019-0619-9.

Combined effect of different factors on weight status and cardiometabolic risk in Italian adolescents.

[Bianco A¹](#), [Filippi AR²](#), [Breda J³](#), [Leonardi V¹](#), [Paoli A⁴](#), [Petrigna L⁵](#), [Palma A⁶](#), [Tabacchi G⁷](#).

Author information

Abstract

BACKGROUND: The observed increase in body weight and cardiometabolic risk in adolescents is a global burden of chronic diseases in adult age. The aim of this study was to assess the combined effect of different factors on weight status and CR of the subjects involved in the ASSO project. The ASSO-FTB was used to assess physical fitness components. The ASSO-FTB was used to assess physical fitness components. The ASSO-FTB was used to assess physical fitness components.

METHODS: This study involved 919 students from high schools. The ASSO-FTB was used to assess physical fitness components. The ASSO-FTB was used to assess physical fitness components. The ASSO-FTB was used to assess physical fitness components.

RESULTS: Two main dimensions were evidenced, with the overall effect of different factors on weight status and CR of the subjects involved in the ASSO project. The ASSO-FTB was used to assess physical fitness components. The ASSO-FTB was used to assess physical fitness components. The ASSO-FTB was used to assess physical fitness components.

CONCLUSIONS: This study contributed to identifying those adolescents at higher risk of overweight/obesity and CR in this age group.

[Int J Environ Res Public Health](#). 2018 Sep 5;15(9). pii: E1933. doi: 10.3390/ijerph15091933.

Profiles of Physical Fitness Risk Behaviours in School Adolescents from the ASSO Project: A Latent Class Analysis.

[Tabacchi G¹](#), [Faigenbaum A²](#), [Jemni M³](#), [Thomas E⁴](#), [Capranica L⁵](#), [Palma A⁶](#), [Breda J⁷](#), [Bianco A⁸](#).

Author information

Abstract

The aim of the present investigation was to describe profiles of adolescents' fitness level, identify latent classes of fitness-related risk behaviours, and describe their sociodemographic and environmental predictors. In total, 883 adolescents (16.4 ± 1.4 years; 167.3 ± 10.4 cm; 62.8 ± 13.5 kg; 62.2% males) were assessed for personal and lifestyle information and for physical fitness components. Eleven possible fitness determinants and seven predictors were included. Latent class analysis (LCA) was used to determine fitness-related risk behaviours. Logistic regressions predicted class membership and assessed associations with fitness levels and fitness components. Five latent classes were recognised: 1-virtuous, 30.7% of respondents; 2-low physical activity/sport, 18.8%; 3-incorrect alcohol/food habits, 25.8%; 4-health risk/overweight, 15.9%; 5-malaise/diseases, 8.8%. Sex, age, parents' overweightness/obesity and education, and school type predicted most classes significantly. Compared to class 1, class 2 had higher odds of having all poor fitness components except upper body maximal strength; class 4 had higher risk of low muscular endurance; and class 5 was likely to have lower maximal strength, muscular endurance, and

BACKGROUND



Reliability

VS

Validity

In an experiment, you need to pay attention to many things. Arguably, two of the most important ones are reliability and validity; your experiment needs to be both reliable and valid, in order for it to make sense and provide you with quality results.

DEFINITION

RELIABILITY is the extent to which the outcomes are consistent when the experiment is repeated more than once.

DEFINITION

VALIDITY is the extent to which the instruments that are used in the experiment measure exactly what you want them to measure.

ANTONINO BIANCO



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COUNTERMOVEMENT JUMP

► Vertical Height

5.6cm



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International
Congress

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Life Quality Research and Innovation

18th and 19th February 2021
ESORM | Rio Maior, Portugal

Quality of Life - Research and Innovation

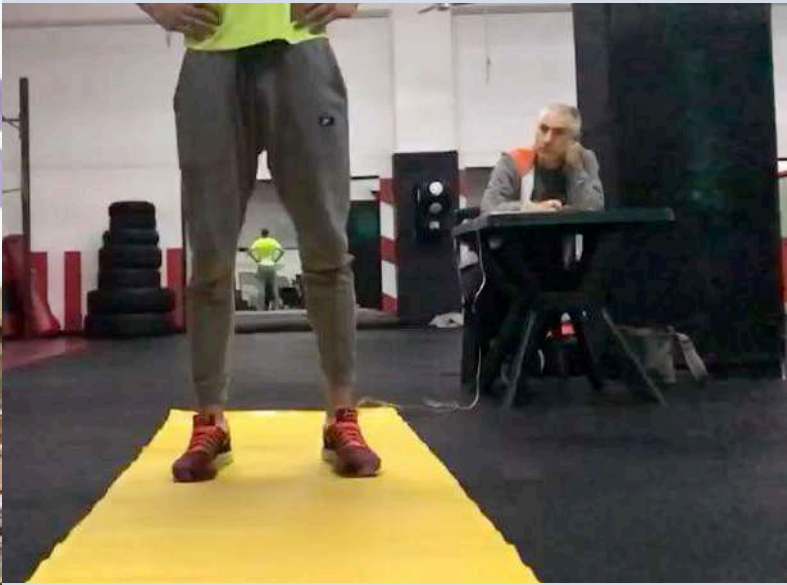
congress.cieqv.pt





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2

Antonio Trio
Personal best
Long Jump: 7.90 m (2019)



> [J Funct Morphol Kinesiol](#). 2021 Jan 17;6(1):E9. doi: 10.3390/jfmk6010009.

Cognitive and Physical Activity-Related Aspects of Children Associated to the Performance of the Crunning Movement

[Ewan Thomas](#)¹, [Marianna Alesi](#)¹, [Garden Tabacchi](#)¹, [Carlos Marques da Silva](#)², [David J Sturm](#)³, [Fatma Neşe Şahin](#)⁴, [Özkan Güler](#)⁴, [Manuel Gómez-López](#)⁵, [Simona Pajaujiene](#)⁶, [Michele Basile](#)⁷, [Ante Rada](#)⁸, [Antonio Palma](#)¹, [Antonino Bianco](#)¹

Affiliations + expand

PMID: 33462170 DOI: [10.3390/jfmk6010009](#)

Free article

Abstract

The aim of this investigation was to identify possible related factors associated to the performance of the crunning test in European children and adolescents. A total number of 559 children and adolescents (age range 6-14 years) of which 308 boys (55.1%) and 251 girls (44.9%), from seven European countries, were screened. A questionnaire concerning demographic and personal life-related factors and a cognitive assessment were performed. A

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SCOPE

Standard Operating Procedures (SOPs)



“Laboratory Manuals”



Provide a step-by-step guide of the details related to a process which allows the exact replication of all involved steps when repeating the process



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Tuck, M. K. et al. (2009). Standard operating procedures for serum and plasma collection: early detection research network consensus statement standard operating procedure integration working group. *J. Proteome Res.* 8, 113–117. doi: 10.1021/pr800545q

RATIONALE

Standard Operating Procedures (SOPs)



Are widely adopted in other disciplines

such as



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Roseti, L., Serra, M., and Bassi, A. (2015). Standard operating procedure for the good manufacturing practice-compliant production of human bone marrow mesenchymal stem cells. *Methods Mol. Biol.* 1283, 171–186. doi: 10.1007/7651_2014_103

RATIONALE

A lack of a
standard procedure

- Less reliability
- Impossibility of comparison
- No normative data



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RATIONALE



TEST 5 DAY 2 COORDINATION'S ESA TEST OR ALSO CALLED QUADRUPED POSITION TEST – ESA FTB

Crunning – die neue Trendsportart aus Australien

Zugegeben, der Anblick ist gewöhnungsbedürftig, wenn eine Gruppe Sportler quer durch Melbourne auf allen Vieren krabbelt. Doch dahinter verbirgt sich kein Scherz, sondern eine neue Trendsportart, die von Australien aus langsam um die Welt zieht: „Crunning“. Damit ist eine Mischung aus „crawl“ (zu deutsch Krabbeln) und „running“ (zu deutsch laufen) gemeint. Mit diesem Workout macht sich keiner zum Affen, denn dahinter versteckt sich ein enorm effektives Ganzkörpertraining. Wer das ewige Joggen leid ist und Lust hat, mal etwas anderes auszuprobieren, sollte sich genauer mit dieser neuen Sportart beschäftigen. Denn damit lässt sich enorm effektiv die Fitness steigern.



„Crun-Off“ und Training: Das steckt hinter dem Trendsport

Interlimb Coordination in Human Crawling Reveals Similarities
in Development and Neural Control With Quadrupeds

quadrupeds. *J Neurophysiol* 101: 603–613, 2009. First published November 26, 2008; doi:10.1152/jn.91125.2008. The study of quadrupeds has furnished most of our understanding of mammalian locomotion. To allow a more direct comparison of coordination between the four limbs in humans and quadrupeds, we studied crawling in the human, a behavior that is part of normal human development and mechanically more similar to quadrupedal locomotion than is bipedal walking. Interlimb coordination during hands-and-knees crawling is

Interlimb Coordination in Human Crawling Reveals Similarities in Development and Neural Control With Quadrupeds

Susan K. Patrick,¹ J. Adam Noah,¹ and Jaynie F. Yang^{1,2}

Department of Physical Therapy and ²Centre for Neuroscience, University of Alberta, Edmonton, Alberta, Canada

Submitted 8 October 2008; accepted in final form 19 November 2008

Although the arms are not essential to walking in humans, the motion of the arms during walking is typically coordinated with that of the legs (Craig et al. 1976; Donker et al. 2001).



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Submitted 8 October 2008; accepted in final form 19 November 2008

Rhythmic activity of one limb pair affects electromyographic (EMG) and reflex activity of the other pair (Frigon et al. 2004; Huang and Ferris 2004; Zehr and Haridas 2003), suggesting important neural linkages between the arms and legs (Dietz et al. 2001; Haridas and Zehr 2003).

Sprint > ????



Interlimb Coordination in Human Crawling Reveals Similarities
in Development and Neural Control With Quadrupeds

Susan K. Patrick,¹ J. Adam Noah,¹ and Jaynie F. Yang^{1,2}

Department of Physical Therapy and ²Centre for Neuroscience, University of Alberta, Edmonton, Alberta, Canada

Submitted 8 October 2008; accepted in final form 19 November 2008

again are scarce. Interestingly, the limited studies indicate the types of coordination used to be different between crawling on hands and knees (Muybridge 1955; Wannier et al. 2001) and hands and feet (Hildebrand 1967; Muybridge 1955; Sparrow 1989; Sparrow and Newell 1994), except at higher speeds of locomotion (Sparrow and Newell 1994). There are no studies that have explored coordination across a full range of locomotor speeds during hands-and-knees crawling.

2008 ?



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SLR – RESULTS

Health-related components
in the table

Skill-related components
still under analysis

Table 2. Frequencies of the studies assessing skill-related fitness components.

	N	%
SPEED	46	55.4
Sprint [†]	35	76.1
Repeated sprint with split time ^{††}	8	17.4
Other ^{†††}	4	8.7
AGILITY	21	25.3
Agility test not specified	4	19.0
505-agility test	4	19.0
Illinois	3	14.3
Agility T-test	5	23.8
Other [‡]	11	52.4
SPEED/AGILITY	9	10.8
10 × 5 m shuttle run (SR)	5	55.6
4 × 10 m SR	2	22.2
Sprint with change of direction	2	22.2
COORDINATION	20	24.1
Körperkoordinationstest für Kinder (KTK)	10	50.0
Other [§]	10	50.0
REACTION TIME [¶]	3	3.6
POWER	3	3.6
BALANCE	3	3.6

[†] including 5, 10, 15, 20, 25, 30, 40, and 60 m. ^{††} sprint 30 m, 40 m or 60 m, split at 5, 10, 20, 30, and 40 m. ^{†††} Bangsbo sprint test; sprinting and jumping; throwing velocity; shuttle sprint. [‡] Barrow zig-zag run test modified; Cross-hopping test; hurdles agility test; 15 m agility run; agility run 4 × 15 m; L-Run agility test; Pro-agility test; Side test; Spider run test; time in a slalom course without and with a ball; 2 × 15 m; zig-zag agility drill; Illinois ball dribbling. [§] Obstacle run; walk backwards (WB); plate tapping; eye-hand-foot coordination; hurdle boomerang run test; low jump test; orientation SR test. [¶] speed while dribbling test; simple reaction time test; react to one given signal from the five proposed. ^{||} Ball throw test; double-Leg to Single-Leg Landing; single Leg Squat. ^{|||} Two studies used the Flamingo test; one study involved standing on one leg lengthwise on a bench as part of the test.

Table 1. Frequencies of the studies assessing health-related fitness components.

		N.	%
MUSCULAR STRENGTH/POWER		57	68.7
Lower body	Horizontal jumps (HJ)	23	40.4
	Standing Broad Jump (SBJ)	19	82.6
	HJ not specified	4	17.4
	Vertical jumps (VJ)	40	70.2
	VJ not specified	4	10.0
	Countermovement jump (CMJ) [*]	36	90.0
	Squat jump (SJ)	8	20.0
	Other jumps ^{**}	10	17.5
	Hops ^{***}	2	3.5
Other lower ^{****}	5	8.8	
Upper body	Dinamometry	7	12.3
	Medicine ball [§]	10	17.5
MUSCULAR STRENGTH/ENDURANCE		20	24.1
Upper body	Bent arm hanging	2	10.0
	Bench press	2	10.0
	Pull-ups	1	5.0
	Push-ups	5	25.0
Lower body	Line-drill (LD)	1	5.0
	Rope jumping	2	10.0
	1000, 500 and 200 m at maximum effort	2	10.0
Abdominal	Sit-up/abdominals ^{§§}	14	70.0
CARDIOVASCULAR ENDURANCE		44	53.0
Multistage tests non intermittent		21	47.7
Multistage tests: 20 m shuttle run (SR)		4	19.0
Multistage tests: other		11	52.4
Multistage tests intermittent		15	34.1
Yo-yo Intermittent Recovery Test (IRT) [^]		12	80.0
Interval Shuttle Run Test (ISRT) ^{^^}		2	13.3
Other running tests ^{^^^}		6	13.6
FLEXIBILITY		17	20.5
Sit and reach		17	100.0
Stand and reach		2	11.8
Shoulder test (flexibility, mobility or rotation test)		5	29.4
Other [°]		1	5.9

^{*} including 1 study specifying CMJ with and without arms, and 1 with arms. ^{**} 5-jump test, Abalakov jump, P.

and adolescents across Europe by including cognitively enriched stimuli within specific warm-ups, prior to a structured physical activity [15]. However, such tests, together with the Leger shuttle run for aerobic assessment [28], were the only tests not influenced by the ESA intervention.

In order to clarify the characteristics of the crunning movement, this investigation will aim to identify lifestyle, physical activity and cognitive aspects associated with the results of this particular type of locomotion.

2. Materials and Methods

2.1. Participants

The sample was composed of 589 children of ages ranging from 6 to 14 years (aged 10.25 ± 1.76 years and 9.98 ± 1.87 years) of which 308 boys (55.1%, age 9.1 ± 1.3 years; weight, 34.9 ± 9.5 kg; height, 139.0 ± 10.4 cm) and 251 girls (44.9%, 10.2 ± 1.8 years; 39.4 ± 11.1 kg; 144.8 ± 14.3 cm), from 7 European countries (Italy, $n = 164$ of which 92 boys and 72 girls; Germany, $n = 64$ of which 41 boys and 23 girls; Portugal, $n = 111$ boys; Spain, $n = 37$ of which 17 boys and 20 girls; Lithuania, $n = 85$ of which 53 boys and 32 girls;



RESULTS



Modifica Invia un messaggio

Promuovi

Visualizza come visitatore



The Influence of an Enriched Sport Program on Children's Sport Motivation in the School Context: The ESA PROGRAM

Ambra Gentile^{1,2*}, Stefano Boca², Yolanda Demetriou³, David Sturm³, Simona Pajaujiene⁴, Ilona Judita Zuoziene⁴, Fatma Nese Sahin⁵, Özkan Güler⁶, Manuel Gómez-López⁶, Carla Chicau Borrego⁷, Doris Matosic⁸, Antonino Bianco⁹ and Marianna Alesi²

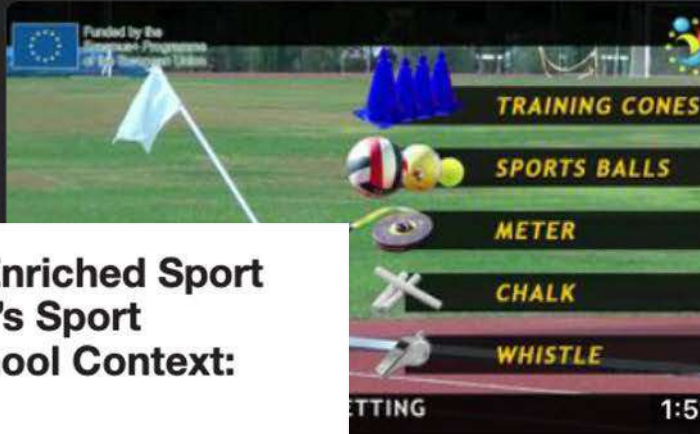
¹ Ph.D. Program in Health Promotion and Cognitive Sciences, University of Palermo, Palermo, Italy, ² Department of Psychology, Educational Sciences and Human Movement, University of Palermo, Palermo, Italy, ³ Department of Sport and Health Sciences, Technical University of Munich, Munich, Germany, ⁴ Department of Coaching Science, Lithuanian Sports University, Kaunas, Lithuania, ⁵ Faculty of Sports Science, Ankara University, Ankara, Turkey, ⁶ Department of Physical Activity and Sport, Faculty of Sports Sciences, University of Murcia, Murcia, Spain, ⁷ Sport Sciences School of Rio Maior, Polytechnic Institute of Santarém - Research Center in Life Quality, Rio Maior, Portugal, ⁸ Faculty of Kinesiology, University of Split, Split, Croatia

ESA Unit 3 (Beginner-Intermediate)

3 anni fa · Visualizzazioni: 129



1



Intermediate-Advanced)

1:51



DOI: 10.3390/ijerph17051723 · Corpus ID: 212664708

Effects of a Physical Activity Intervention on Physical Fitness of schoolchildren: The Enriched Sport Activity Program

E. Thomas, A. Bianco, +14 authors, A. Palma · Published 2020 · Medicine · International Journal of Environmental Research and Public Health

Background: Physical fitness in youth is a predictor of health in adulthood. The main objective of the present study was to understand if an enriched sport activity program could increase physical fitness in a population of schoolchildren. Methods: In a sample of 672 children aged 10.0 ± 1.90 years, different motor skills were tested by the 1 kg and 3 kg ball throw (BT), the standing broad jump (SBJ), the 30 m sprint (30mS), the leger shuttle run (LSR), the illinois agility test (IGT), and the... CONTINUE READING

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DOI: 10.3390/jfmk5020026 · Corpus ID: 218992489

Effects of the Enriched Sports Activities-Program on Executive Functions in Italian Children

M. Alesi, Giulia Giordano, +3 authors, Antonino Bianco · Published 2020 · Medicine, Psychology · Journal of Functional Morphology and Kinesiology

Physical activity (PA) during childhood plays an important role in brain development. This role is played in both the structural domain, prefrontal cortex area, and in the functional domain, involving the higher cognitive functions, including the executive functions (EF). Working memory (WM), inhibition, and switching as fundamental EF were investigated in an Italian children sample before and after four months of an Enriched Sports Activities-Program (ESA-Program). EFs were assessed at pre... CONTINUE READING

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METHODS



Table 1. Differences in the crunning test performances by gender and age range.

	n	Mean (s)	SD (s)	p-Value
Tot	589	6.25	2.416	
Gender				0.000 ^a
male	318	5.55	2.306	
female	271	7.06	2.289	
Age range				0.000 ^b
6–8	162	7.2	2.946	
9–11	298	5.99	1.97	
≥12	129	5.65	2.291	

SD: Standard deviation; Tot: Total number; ^a Estimated through paired Student's *t*-test. ^b Estimated through ANCOVA. All estimates were adjusted for gender and age.

RESULTS

5. Conclusions

The present investigation detected different factors associated with the performance of the crunning movement. These are related to lifestyle and cognitive factors which may influence performance of the crunning movement. These associated variables need to be considered when comparing the results of the crunning movement test, especially across populations. Special attention must be paid regarding gender and previously practiced physical activity. The specificity of the crunning test still needs to be understood within the context of a fitness evaluation.

Table 2. Differences in crunning test performances by country and socio-economic status.

	n	Mean (s)	SD (s)	p-Value ^a
Country	589	6.25	2.416	0.000
Croatia	50	5.26	1.325	
Germany	64	5.62	3.116	
Italy	164	7.69	2.501	
Lithuania	85	5.36	1.503	
Portugal	111	4.31	1.151	
Spain	37	6.37	0.508	
Turkey	78	8.03	1.709	

SD: Standard deviation; ^a Estimated through ANCOVA. All estimates were adjusted for gender and age.

Table 3. Differences in crunning test performances by sport-related aspects.

	n	Mean (s)	SD (s)	p-Value ^a
Sport type	384	6.18	2.316	0.0166
Individual	104	6.64	2.321	
Team	280	6.01	2.294	
Sport type (n = 5 *)	384	6.18	2.316	0.1139
Sport frequency (h/week)	n.	R ² .	SE	p-value ^b
	467	0.14	0.101	0.168

SD: Standard deviation; SE: Standard error; ^a Estimated through paired Student's *t*-test. ^b Estimated through linear regression analysis. * Five sport categories were included, according to the American Heart Association classification adopted.

DISCUSSION

All Groups				
Spearman Rank Order Correlations (Untitled1 (B2:TL53))				
MD pairwise deleted				
Marked correlations are significant at p < .05000				
Variable	Age	Weight (KG)	Heigth (CM)	
QUADRUPED Test	-0.439119	0.045482	-0.302052	

Country=Italy, Gender=F				
Spearman Rank Order Correlations (Untitled1 (B2:TL53))				
MD pairwise deleted				
Marked correlations are significant at p < .05000				
Variable	Age	Weight (KG)	Heigth (CM)	
QUADRUPED Test	-0.003641	0.305447	0.057455	

Country=Italy, Gender=M				
Spearman Rank Order Correlations (Untitled1 (B2:TL53))				
MD pairwise deleted				
Marked correlations are significant at p < .05000				
Variable	Age	Weight (KG)	Heigth (CM)	
QUADRUPED Test	-0.251447	0.021287	-0.199540	

Country=Lithuania, Gender=M				
Spearman Rank Order Correlations (Untitled1 (B2:TL53))				
MD pairwise deleted				
Marked correlations are significant at p < .05000				
Variable	Age	Weight (KG)	Heigth (CM)	
QUADRUPED Test	0.001526	0.145957	0.098716	

Country=Lithuania, Gender=F				
Spearman Rank Order Correlations (Untitled1 (B2:TL53))				
MD pairwise deleted				
Marked correlations are significant at p < .05000				
Variable	Age	Weight (KG)	Heigth (CM)	
QUADRUPED Test	-0.425505	0.005193	-0.314171	

Country=Italy					
Descriptive Statistics (Untitled1 (B2:TL532))					
Variable	Valid N	Mean	Minimum	Maximum	Std.Dev.
ID	332	166,5000	1,0000	332,0000	95,98437
Age	269	8,4164	7,0000	12,0000	0,93315
Weight (KG)	271	34,7638	20,0000	68,0000	9,85617
Heigth (CM)	322	135,0342	119,0000	170,0000	9,79543
QUADRUPED Test	330	7,4175	3,1000	16,8100	2,44752
30 M SPRINT	330	6,6645	4,6000	9,1900	0,89382
SEATED BALL THROW 1kg	330	248,5424	105,0000	565,0000	79,35488
SEATED BALL THROW 3kg	330	171,3818	11,0000	377,0000	50,09953
STANDING LONG JUMP	332	120,2590	10,0000	377,0000	32,91194
ILLINOIS TEST	329	23,9973	18,7800	37,0400	2,73409
LÉGER TEST	330	2,9585	1,2000	6,5000	1,13491

Country=Lithuania					
Descriptive Statistics (Untitled1 (B2:TL532))					
Variable	Valid N	Mean	Minimum	Maximum	Std.Dev.
ID	199	431,9246	333,0000	526,0000	57,46426
Age	199	10,1256	8,0000	13,0000	1,16311
Weight (KG)	186	36,5771	22,7000	87,1000	8,44562
Heigth (CM)	183	145,0000	122,0000	165,0000	9,05539
QUADRUPED Test	185	5,2109	2,5000	11,1200	1,49464
30 M SPRINT	189	6,0456	4,8500	8,1500	0,55698
SEATED BALL THROW 1kg	190	328,3421	200,0000	580,0000	67,28384
SEATED BALL THROW 3kg	190	209,7579	110,0000	398,0000	44,72023
STANDING LONG JUMP	189	151,4233	79,0000	214,0000	22,69433
ILLINOIS TEST	189	21,5731	17,7000	50,7300	3,05883
LÉGER TEST	186	5,0586	1,5000	10,5000	1,73621



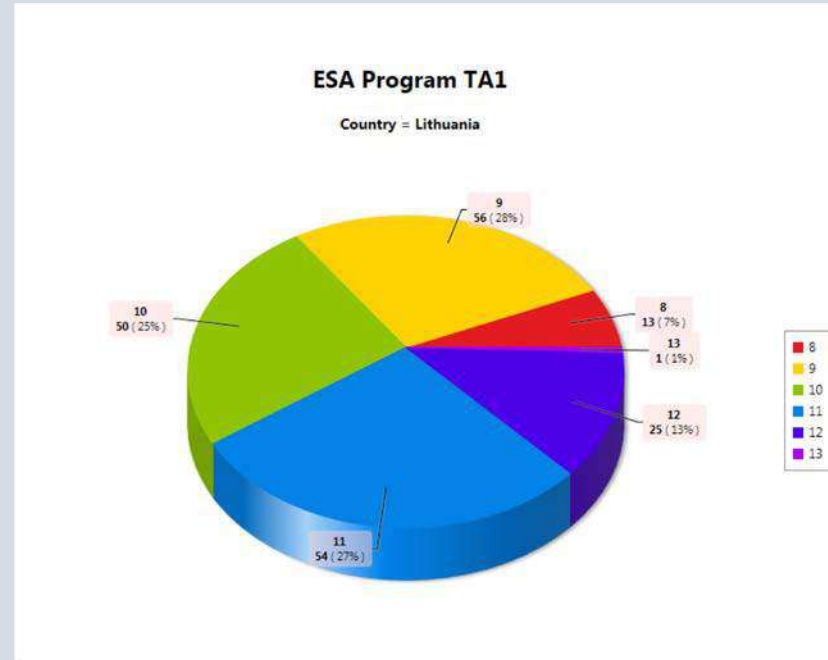
All Groups Spearman Rank Order Correlations (Untitled1 (B2:TL532)) MD pairwise deleted Marked correlations are significant at $p < .05000$						
Variable	30 M SPRINT	SEATED BALL THROW 1kg	SEATED BALL THROW 3kg	STANDING LONG JUMP	ILLINOIS TEST	LÈGER TEST
QUADRUPED Test	0.539528	-0.498395	-0.467551	-0.704666	0.586299	-0.543982

Country=Italy, Gender=F Spearman Rank Order Correlations (Untitled1 (B2:TL532)) MD pairwise deleted Marked correlations are significant at $p < .05000$						
Variable	30 M SPRINT	SEATED BALL THROW 1kg	SEATED BALL THROW 3kg	STANDING LONG JUMP	ILLINOIS TEST	LÈGER TEST
QUADRUPED Test	0.362368	-0.127979	-0.284502	-0.403034	0.446753	-0.125164

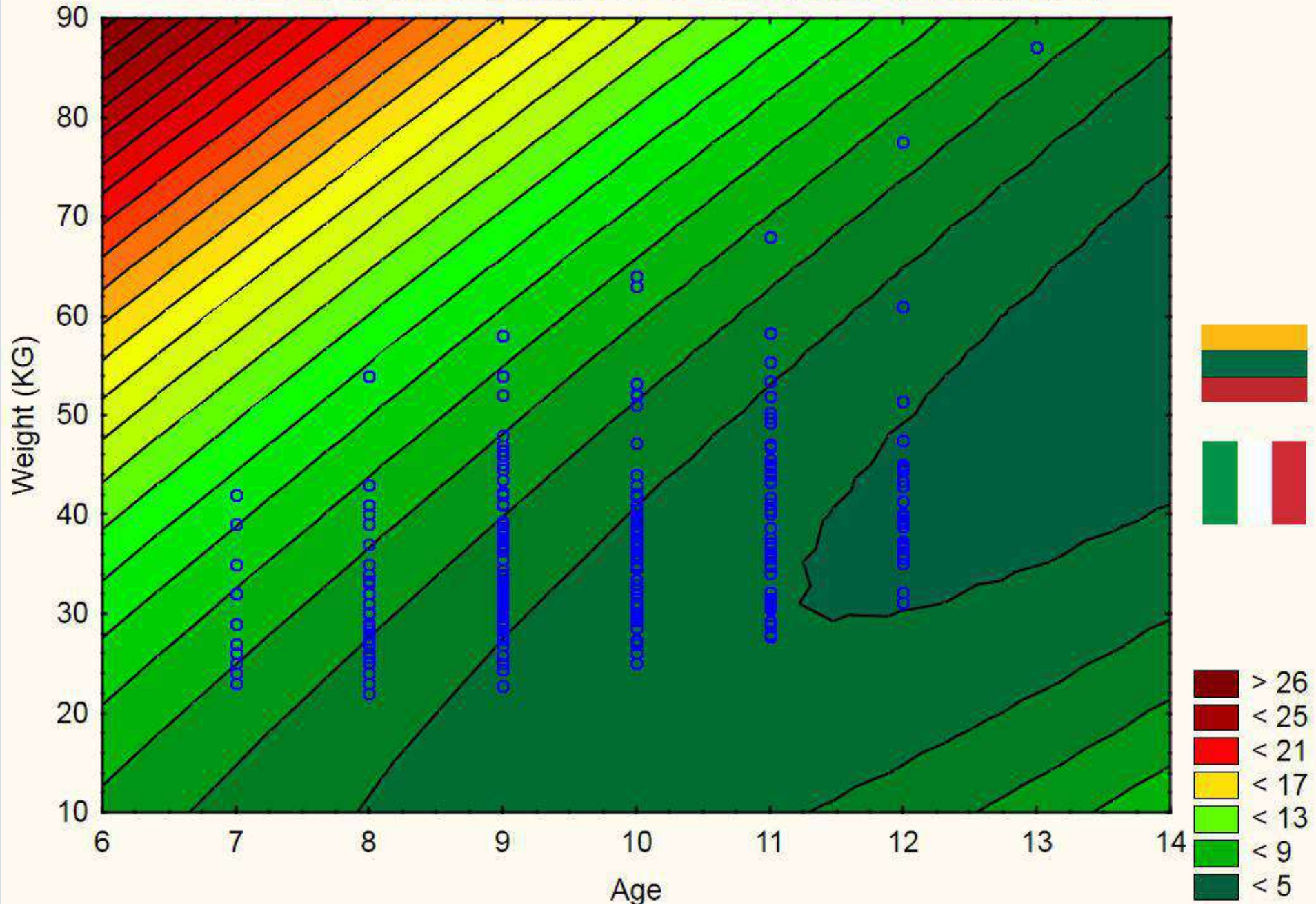
Country=Italy, Gender=M Spearman Rank Order Correlations (Untitled1 (B2:TL532)) MD pairwise deleted Marked correlations are significant at $p < .05000$						
Variable	30 M SPRINT	SEATED BALL THROW 1kg	SEATED BALL THROW 3kg	STANDING LONG JUMP	ILLINOIS TEST	LÈGER TEST
QUADRUPED Test	0.351315	-0.356628	-0.301057	-0.586256	0.325814	-0.287022

Country=Lithuania, Gender=M Spearman Rank Order Correlations (Untitled1 (B2:TL532)) MD pairwise deleted Marked correlations are significant at $p < .05000$						
Variable	30 M SPRINT	SEATED BALL THROW 1kg	SEATED BALL THROW 3kg	STANDING LONG JUMP	ILLINOIS TEST	LÈGER TEST
QUADRUPED Test	0.453230	-0.256937	-0.220539	-0.581707	0.515794	-0.477376

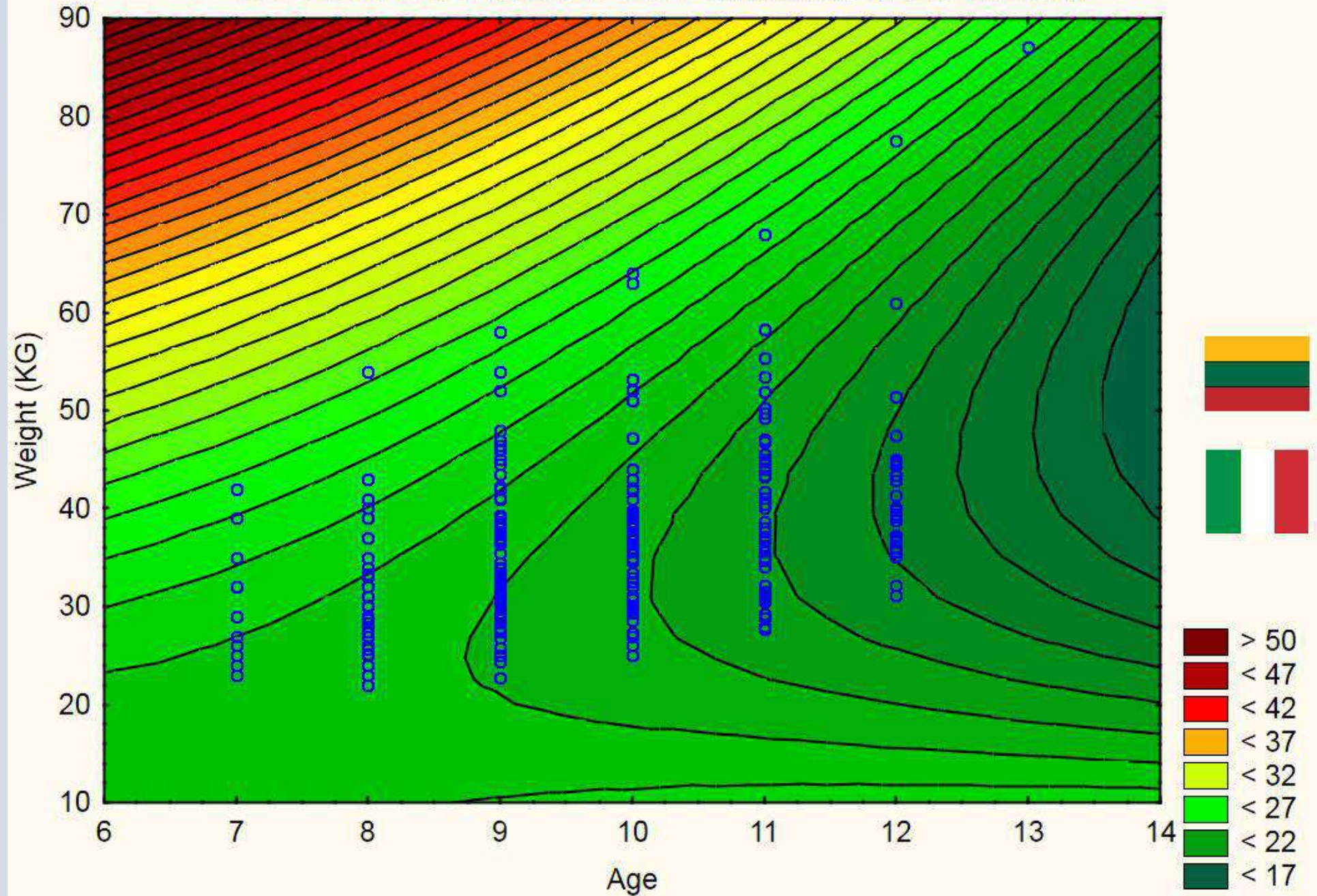
Country=Lithuania, Gender=F Spearman Rank Order Correlations (Untitled1 (B2:TL532)) MD pairwise deleted Marked correlations are significant at $p < .05000$						
Variable	30 M SPRINT	SEATED BALL THROW 1kg	SEATED BALL THROW 3kg	STANDING LONG JUMP	ILLINOIS TEST	LÈGER TEST
QUADRUPED Test	0.679317	-0.469531	-0.444619	-0.686692	0.574372	-0.496270



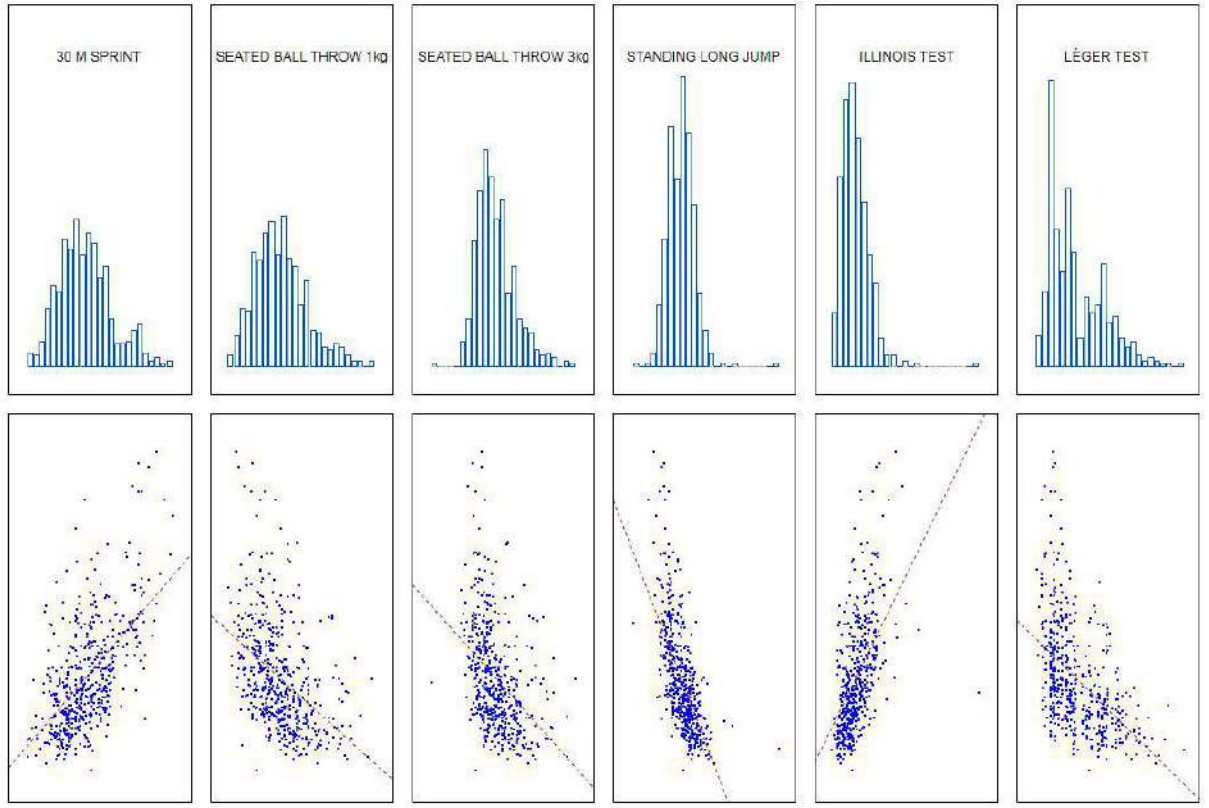
All Groups
3D Contour Plot of QUADRUPED Test against Age and Weight (KG)



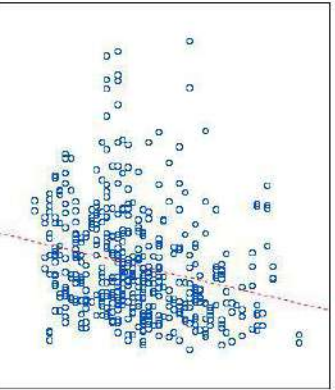
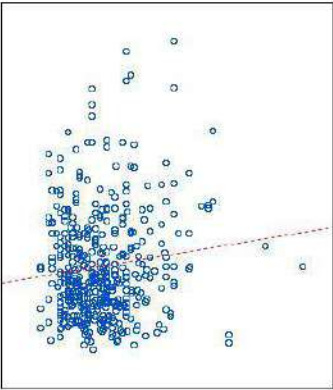
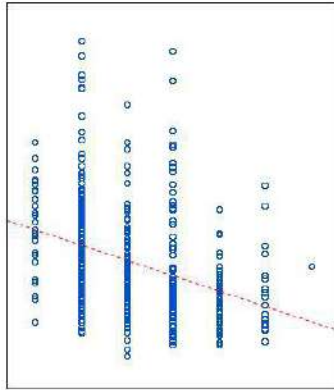
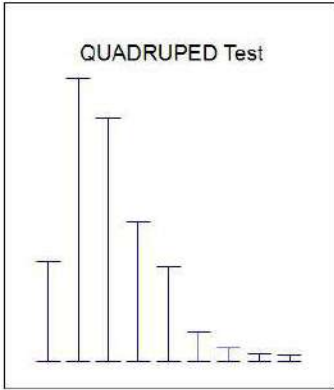
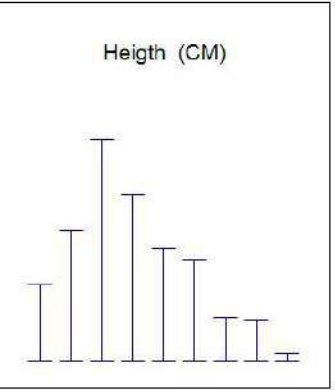
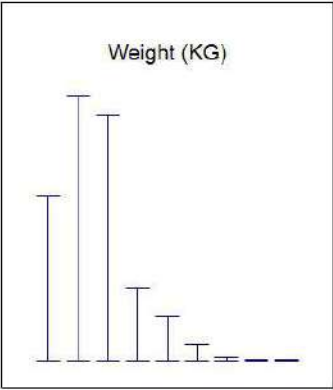
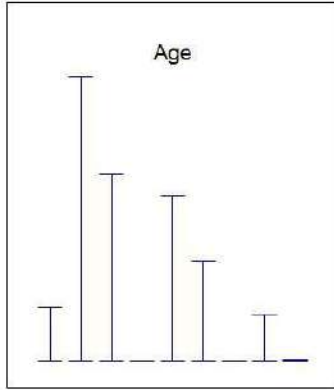
All Groups
3D Contour Plot of ILLINOIS TEST against Age and Weight (KG)



Nonparametric Correlations (ESA Program; ITA-LIT)
 Sample: 531 Observations (138,6±10,6 cm / 35,5±9,3 kg / 9,1±1,3 yrs)



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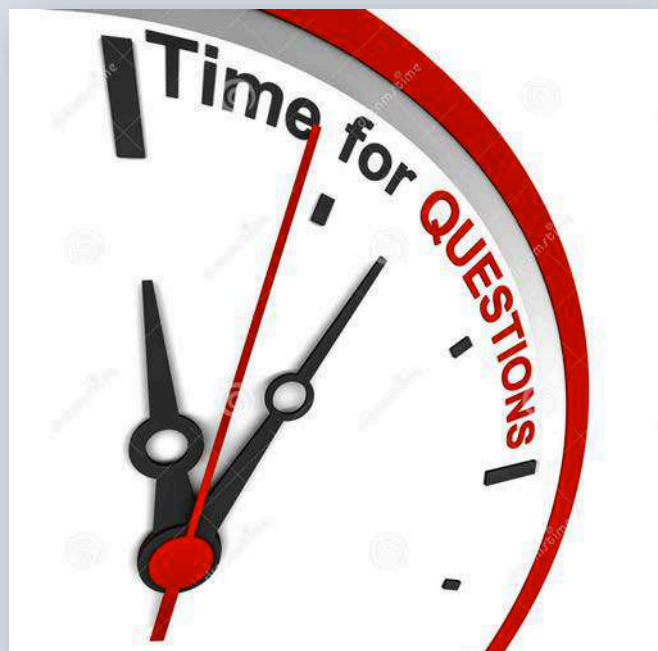
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