ORTHOS PAIDOS

III INCONTRO DI ORTOPEDIA PEDIATRICA ALLA SAPIENZA

L'ESAME CLINICO

Pietro Persiani

Roma, 19 marzo 2016

Aula Magna

Clinica Ortopedica

"Sapienza Università di Roma"

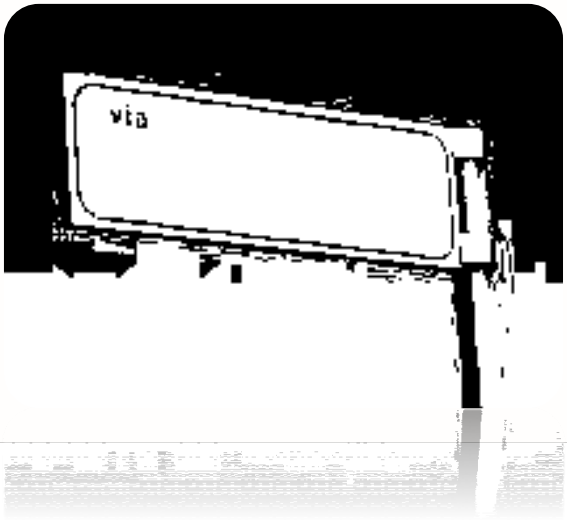
P.le Aldo Moro, 5

SAPIENZA
UNIVERSITÀ DI ROMA

10 MIN

ORIENTARSI

ORIENTARSI



PERCHE'....

SE C'E' DIAGNOSI

↓ ↓ ↓

C'E' TERAPIA

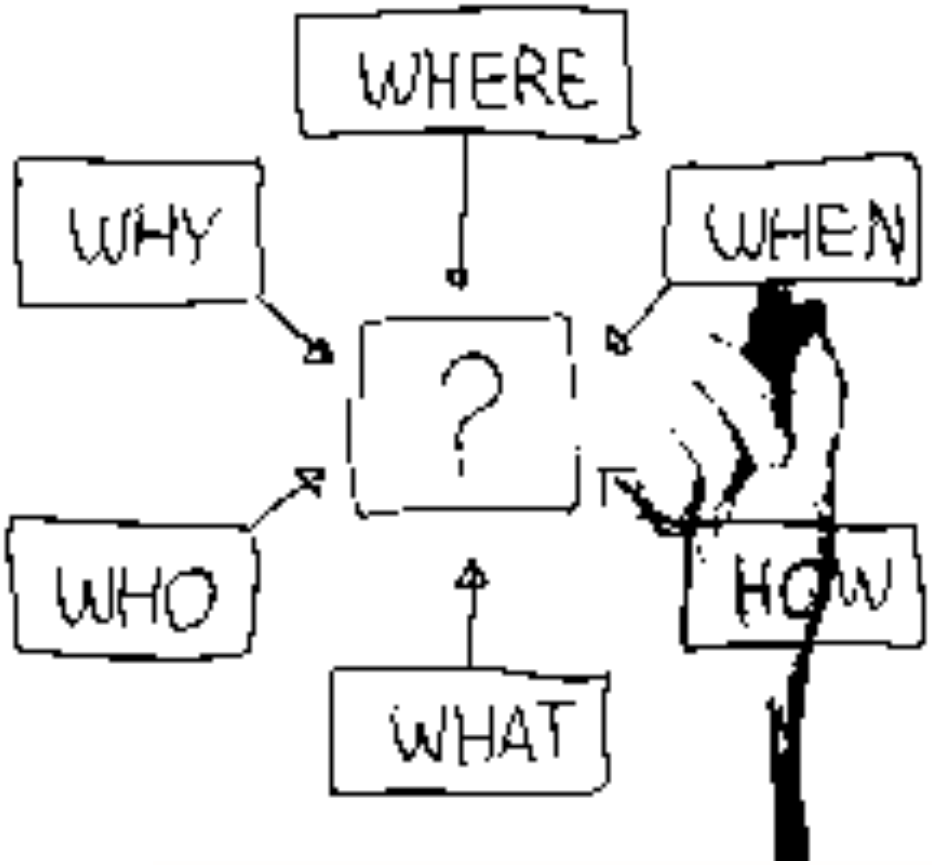
COSA CERCHIAMO?

ESPRESSIONE DI

PATOLOGIA ACUTA, CRONICA, CONGENITA ?

PARAMORFISMO O DISMORFISMO?

QUANDO PREOCCUPARSI ?
COME COMPORTARSI ?



Risk factors for the first episode of low back pain in children

Eur Spine J (1999) 8:429–438
© Springer-Verlag 1999

REVIEW

F. Balagué
B. Troussier

Non-specific low back pain in children and adolescents: risk factors

Int Arch Occup Environ Health (2009) 82:797–806
DOI 10.1007/s00420-009-0410-9

REVIEW

PEDIATRIC REVIEW

Musculoskeletal pain in overweight and obese children

SM Smith[1,2], B Sumar[1] and KA Dixon[1]

G. Kristjánsdóttir

Prevalence of self-reported back pain in school children: a study of sociodemographic differences

Eur J Pediatr (2011) 170:149–156
DOI 10.1007/s00431-010-1220-9

REVIEW

Practical approach to the child presenting with back pain

Rachid Haidar · Sara Saad · Nabil J. Khoury · Umayya Musharrafieh

Quality of Life Research, 3 (1), pp. S27–S31

The incidence of back pain and headache among Swedish school children

G. Brattberg
Department of Research and Development, County Council of Gävleborg, Gävle, Sweden.

and Return to Work in Low Back Pain: Current Insights

Clin Orthop Relat Res (2008) 466:1971–1977
DOI 10.1007/s11999-008-0296-2

ORIGINAL ARTICLE

Streamlining the Evaluation of Low Back Pain in Children

Joshua D. Auerbach MD, Jaimo Ahn MD, PhD, Miltiadis H. Zgonis MD, Sudheer C. Reddy MD, Malcolm L. Ecker MD, John M. Flynn MD

Houghton *Pediatric Rheumatology* 2010, 8:28
http://www.ped-rheum.com/content/8/1/28

PEDIATRIC RHEUMATOLOGY

Review for the generalist: evaluation of low back pain in children and adolescents

Kristi W. Houghton

Eur Spine J (2005) 14: 595–598
DOI 10.1007/s00586-004-0822-4

ORIGINAL ARTICLE

Anthropometric measurements and growth as predictors of low-back pain: a cohort study of children followed up from the age of 11 to 22 years

Mikko S. Paassa
Markku M. Heliövaara
Jorma T. Seitsamo
Mauno H. Könönen
Kirsti A. Hurmerinta
Maunu J. Nissinen

Eur Spine J (1998) 8:439–443
© Springer-Verlag 1999

ORIGINAL PAPER

Low back pain in a population of school children

R. Gunzburg
F. Balagué
M. Nordin
M. Szpalski
D. Duyck
D. Bull
C. Mélot

Evaluation of Back Pain in Children and Adolescents

ROBERT M. BERNSTEIN, MD, *Cedars-Sinai Medical Center, Los Angeles, California*
HAROLD COZEN, MD, *Palos Verdes Estates, California*

Zoe A. Michaleff · Steven J. Kamper · Christopher G. Maher · Roni Evans · Carolyn Broderick · Nicholas Henschke

LIVELLO EVIDENZA 1

Calvo-Muñoz *et al. BMC Pediatrics* 2013, **13**:14
http://www.biomedcentral.com/1471-2431/13/14

BMC
Pediatrics

RESEARCH ARTICLE **Open Access**

Prevalence of low back pain in children and adolescents: a meta-analysis

Inmaculada Calvo-Muñoz[1*], Antonia Gómez-Conesa[2] and Julio Sánchez-Meca[3]

SOLO NEL 76% DEI CASI
SI RIESCE A IDENTIFICARE
UNA CAUSA

Afshani E, Kuhn JP; Common causes of low back pain in children.; Radiographics. Mar;11(2):269-91.

DIAGNOSI DIFFERENZIALE

Postura

Traumi

Contusioni

Scoliosi

Sforzi muscolari

Spondilolisi

Overuse

Scheuermann

Ernia del disco

Fratture vertebrali

Infezioni del retroperitoneo

Pielonefriti

Disciti

Artriti

Malattie sistemiche

Spondilolistesi

Tumori ossei (Ewing; cisti aneurismatica; osteoblastoma; osteoma osteoide; linfoma)

Sacroileite

Tumori del midollo spinale (ependinoma)

ORIENTARSI

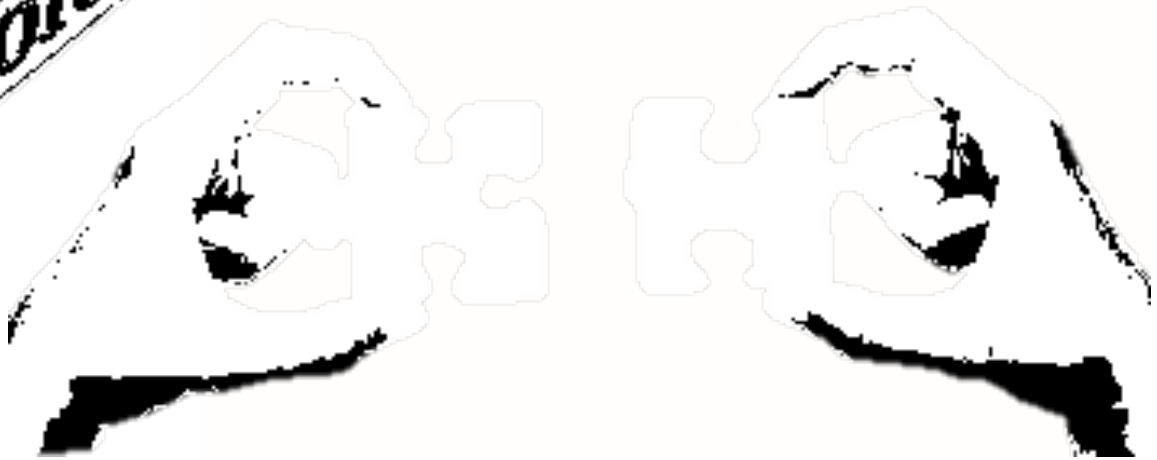
ETA’

ESAME OBIETTIVO

ANAMNESI

SEDE

DIAGNOSTICA STRUMENTALE di SUPPORTO e CONFERMA



ANAMNESI **ESAME CLINICO**

PRIORITY

ANAMNESI: ASCOLTARE

QUANDO?

NOTTURNO, MATTUTINO

ASSOCIATO A SEGNI SISTEMICI

SI ACUISCE CON I MOVIMENTI

CON LO SPORT

DA QUANTO TEMPO?

ACUTO, CRONICO

ANDAMENTO

ASSOCIATO A SCOLIOSI DI RECENTE INSORGENZA

SINTOMI ASSOCIATI

Table 1. Differential Diagnosis of Back Pain in Children and Adolescents

Presentation	*Possible diagnoses*	*Associated symptoms*
Nighttime pain	Tumor, infection	Fever, malaise, weight loss
Pain with fever or other generalized symptoms	Tumor, infection	Nighttime pain
Acute pain	Herniated disk, slipped apophysis, spondylolysis	Radicular pain, positive straight leg raising test result
	Vertebral fracture	Other injuries, neurologic loss
	Muscle strain	Muscle tenderness without radiation
Chronic pain	Scheuermann's kyphosis	Rigid kyphosis
	Inflammatory spondyloarthropathies	Morning stiffness, sacroiliac joint tenderness
	Psychological problems	—
Pain with spinal forward flexion	Herniated disk, slipped apophysis	Radicular pain, positive straight leg raising test result
Pain with spinal extension	Spondylolysis, spondylolisthesis, lesion or injury in the pedicle or lamina (posterior arch)	Hamstring tightness
Pain with recent-onset scoliosis	Tumor, infection, herniated disk, syrinx	Fever, malaise, weight loss, positive straight leg raising test result

Evaluation of Back Pain in Children and Adolescents R.M. BERNSTEIN December 1, 2007 American Family Physician

CAPIRE

ADOLESCENZA, CARATTERE, ABITUDINI

RAPPORTO CON IL GENITORE CHE LO ACCOMPAGNA…

CERVICOBRACHIALGIA DA CONVERSIONE

Adolescent Neck and Shoulder Pain—The Association With Depression, Physical Activity, Screen-Based Activities, and Use of Health Care Services

Solbjørg Makalani Myrtveit[a,b,*], Børge Sivertsen, Ph.D.[b,c,d], Jens Christoffer Skogen, Ph.D.[b,e], Lisbeth Frostholm, Ph.D.[f], Kjell Morten Stormark, Ph.D.[g], and Mari Hysing, Ph.D.[g]

JOURNAL OF ADOLESCENT HEALTH

SINTOMI SIMIL-DEPRESSIVI

OPPOSIZIONE

USO DI COMPUTER/VIDEOGIOCHI

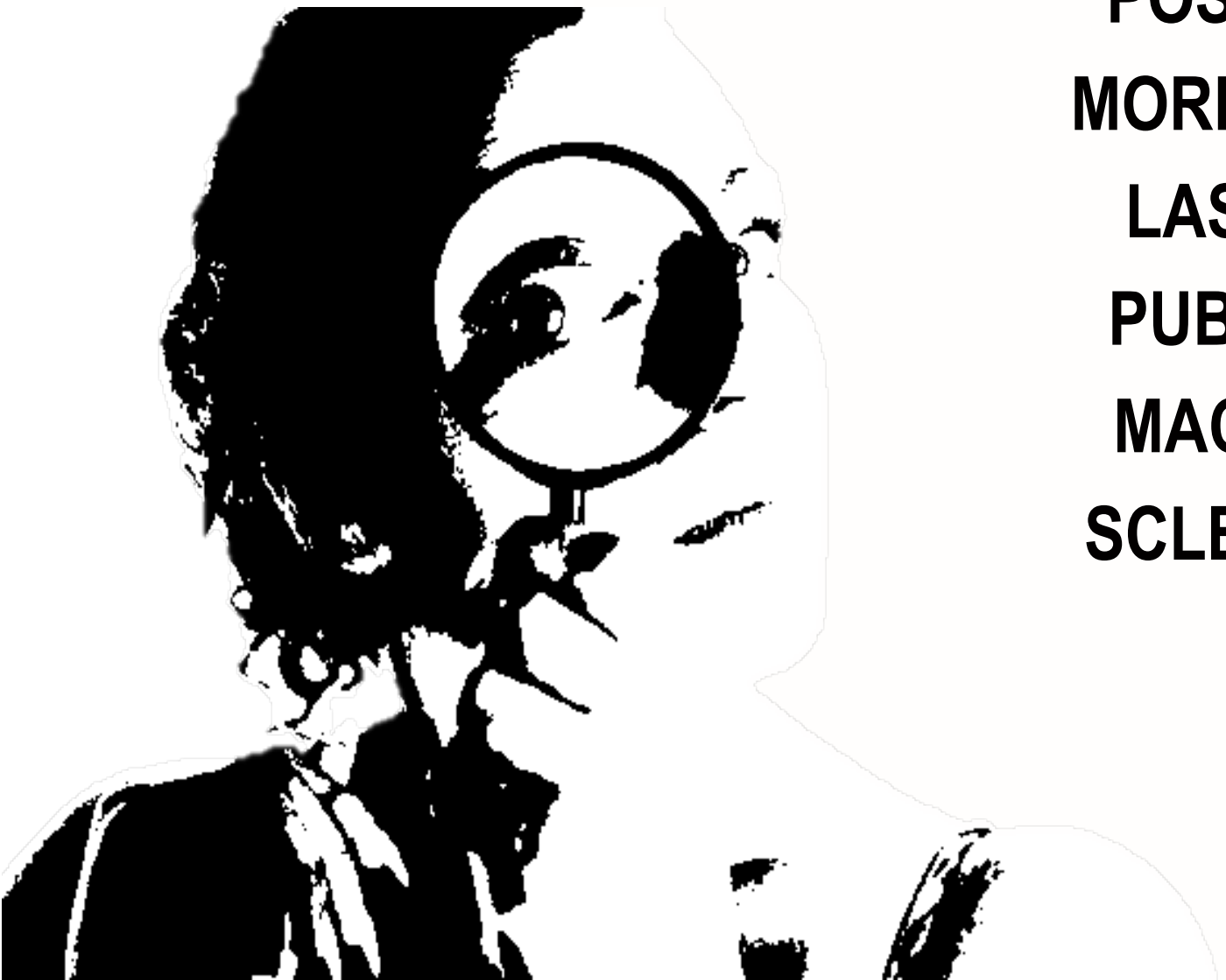
{

CLINICA NEGATIVA

DIAGNOSTICA NEGATIVA

ESAME OBIETTIVO

OSSERVARE



“POSTURA”

MORFOTIPO

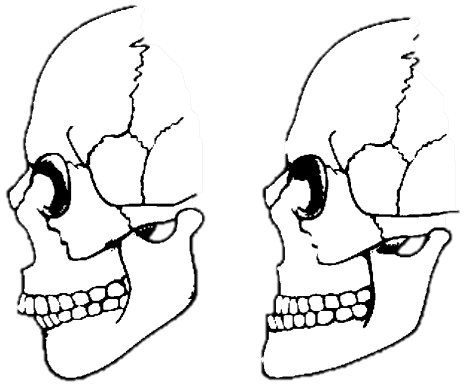
LASSITÀ

PUBERTÀ

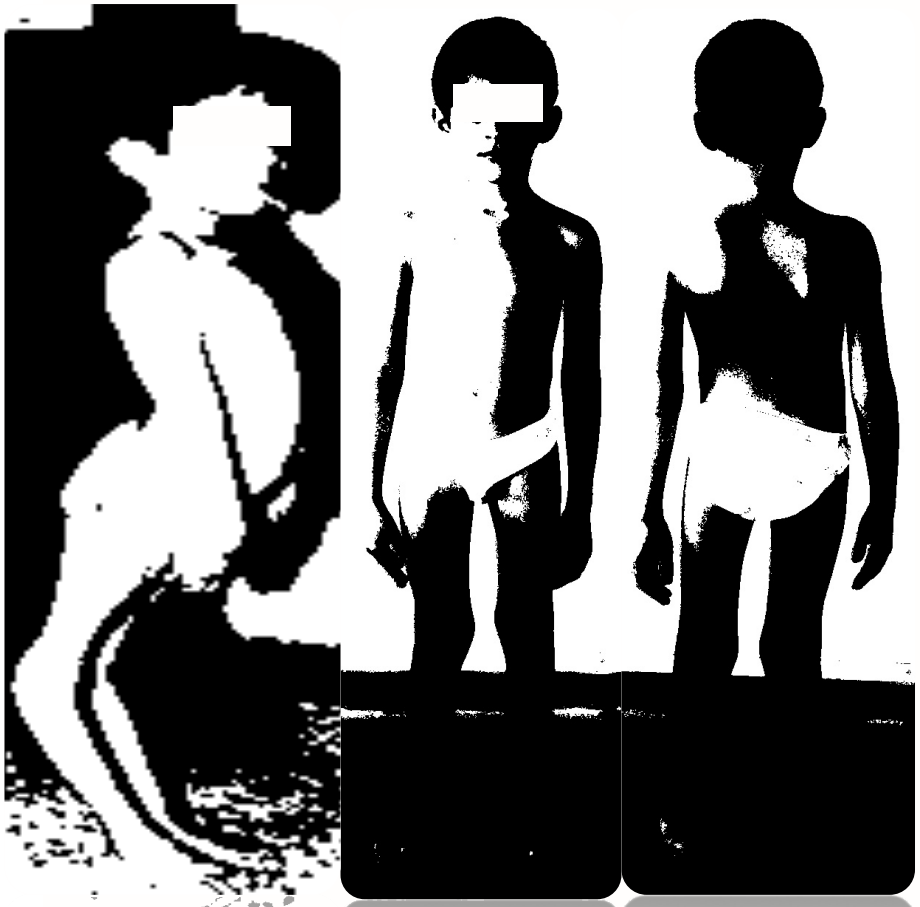
MACCHIE

SCLERE ….

POSTURA E MORFOTIPO



OCCLUSIONE

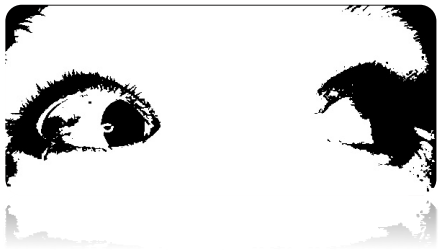


SPOGLIARE SEMPRE IL BAMBINO

CARATTERISTICHE

MACCHIE
CAFFÈ-LATTE

SCLERE



PUBERTA’
TELARCA

DISRAFISMI

IPERLASSITÀ

ESAME OBIETTIVO

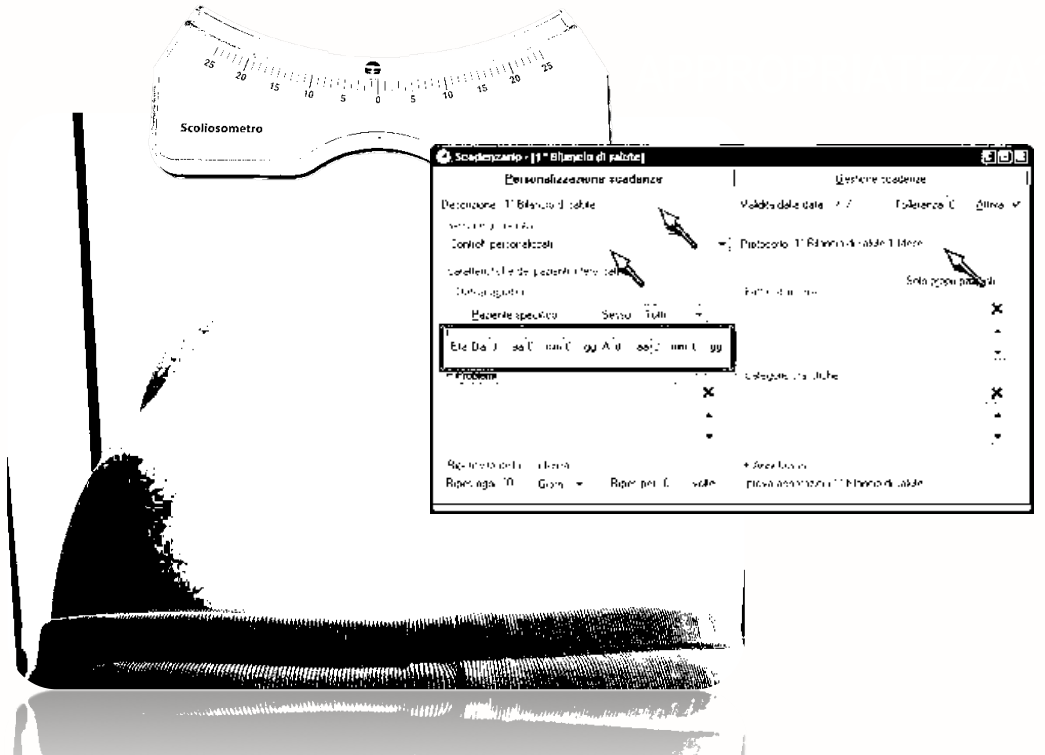
LINEA BIS-ILIACA

LINEA BIS-ACROMIALE

APICE SCAPOLARE

TRIANGOLI DELLA TAGLIA

GIBBO



ESAME OBIETTIVO

ASIMMETRIE TORACICHE

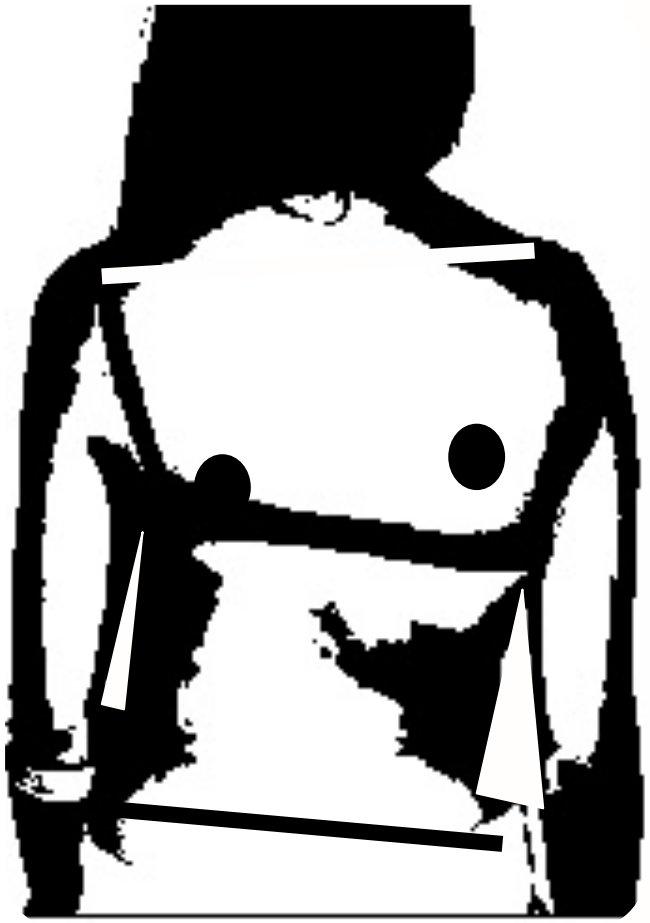
ESAME OBIETTIVO

Obliquità linea bis-acromiale

Diversa altezza apice scapolare

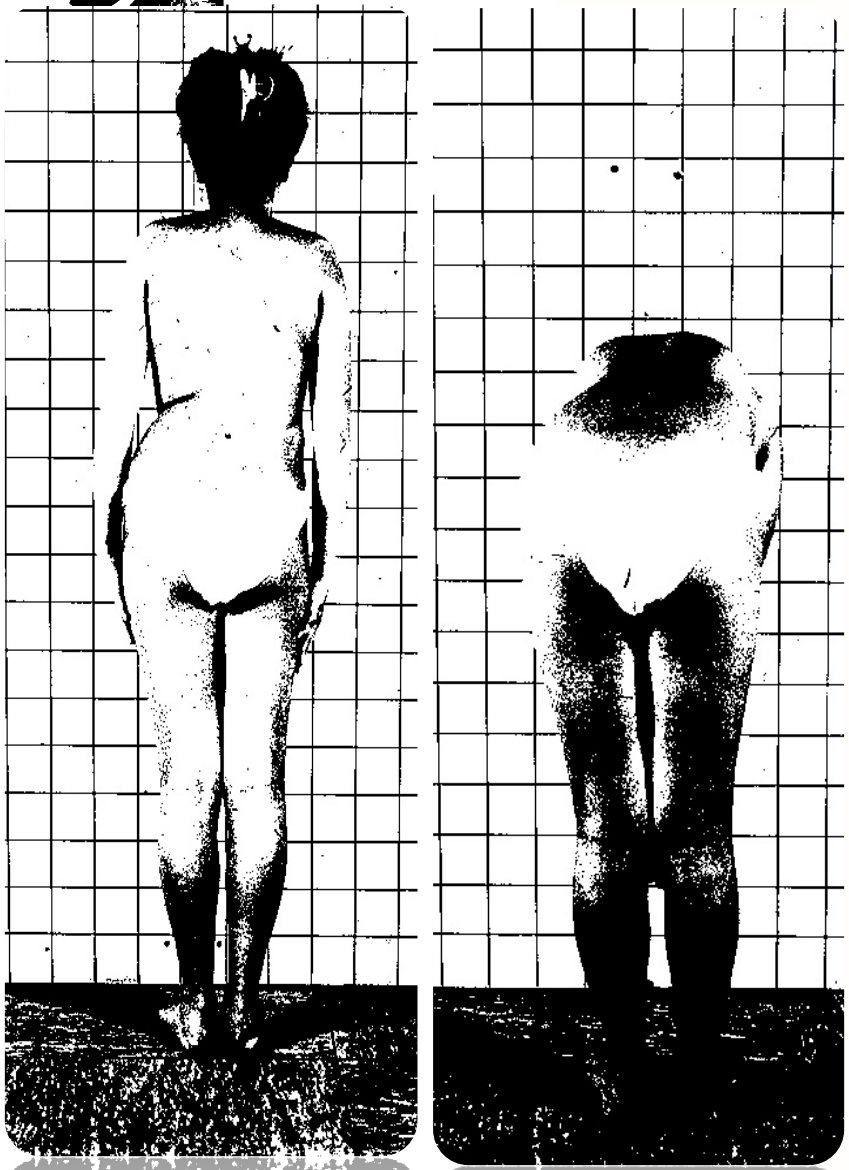
Obliquità linea bis-iliaca

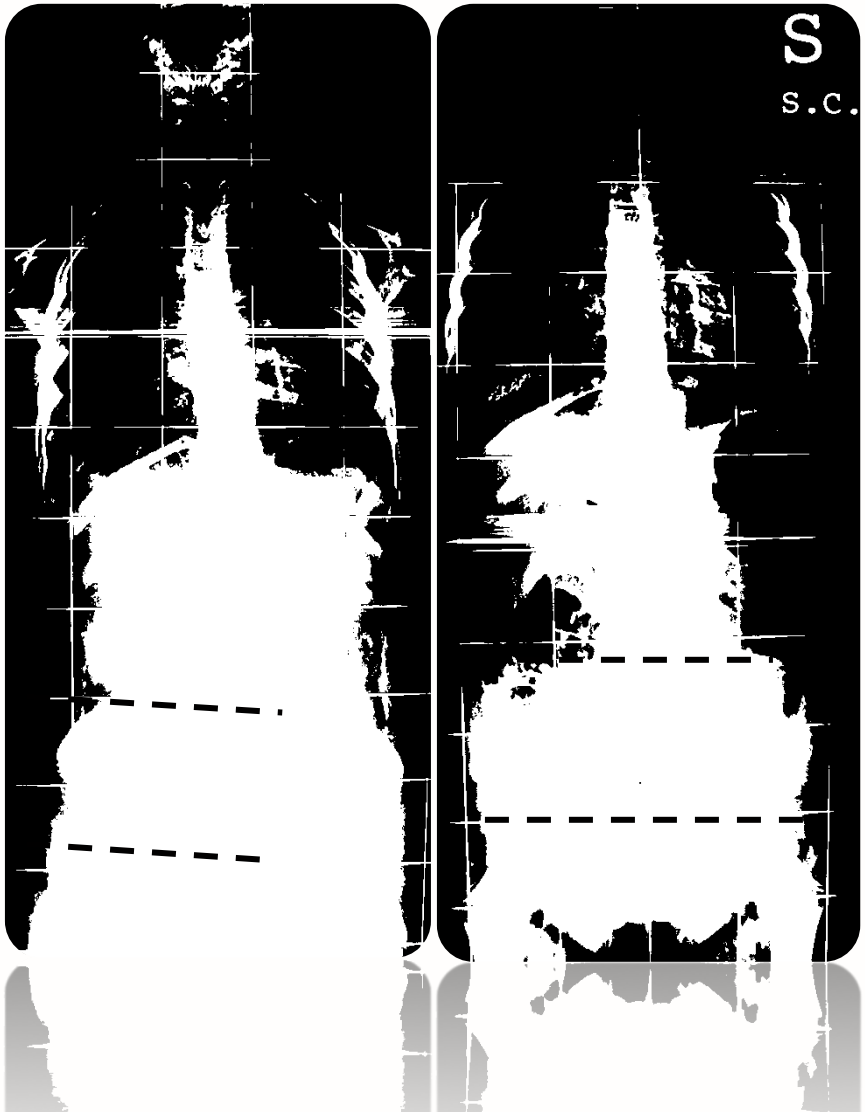
Gibbo dorsale



ESAME OBIETTIVO

ATTEGGIAMENTI





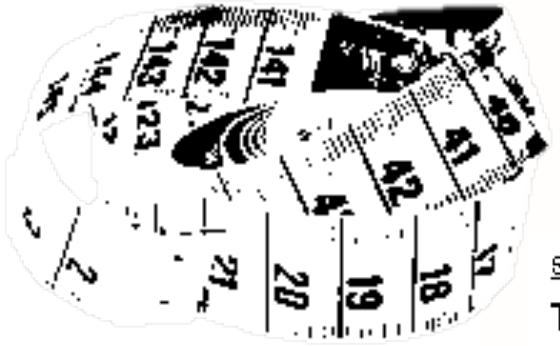
ETEROMETRIE

PIU' LUNGA O PIU' CORTA?

FEMORALE, TIBIALE?

MISTA?

SIAS - MI



Eur Spine J
DOI 10.1007/s00586-011-1912-5

ORIGINAL ARTICLE

The effect of simulating leg length inequality on spinal posture and pelvic position: a dynamic rasterstereographic analysis

Marcel Betsch · Michael Wild · Birgit Große · Walter Rapp · Thomas Horstmann

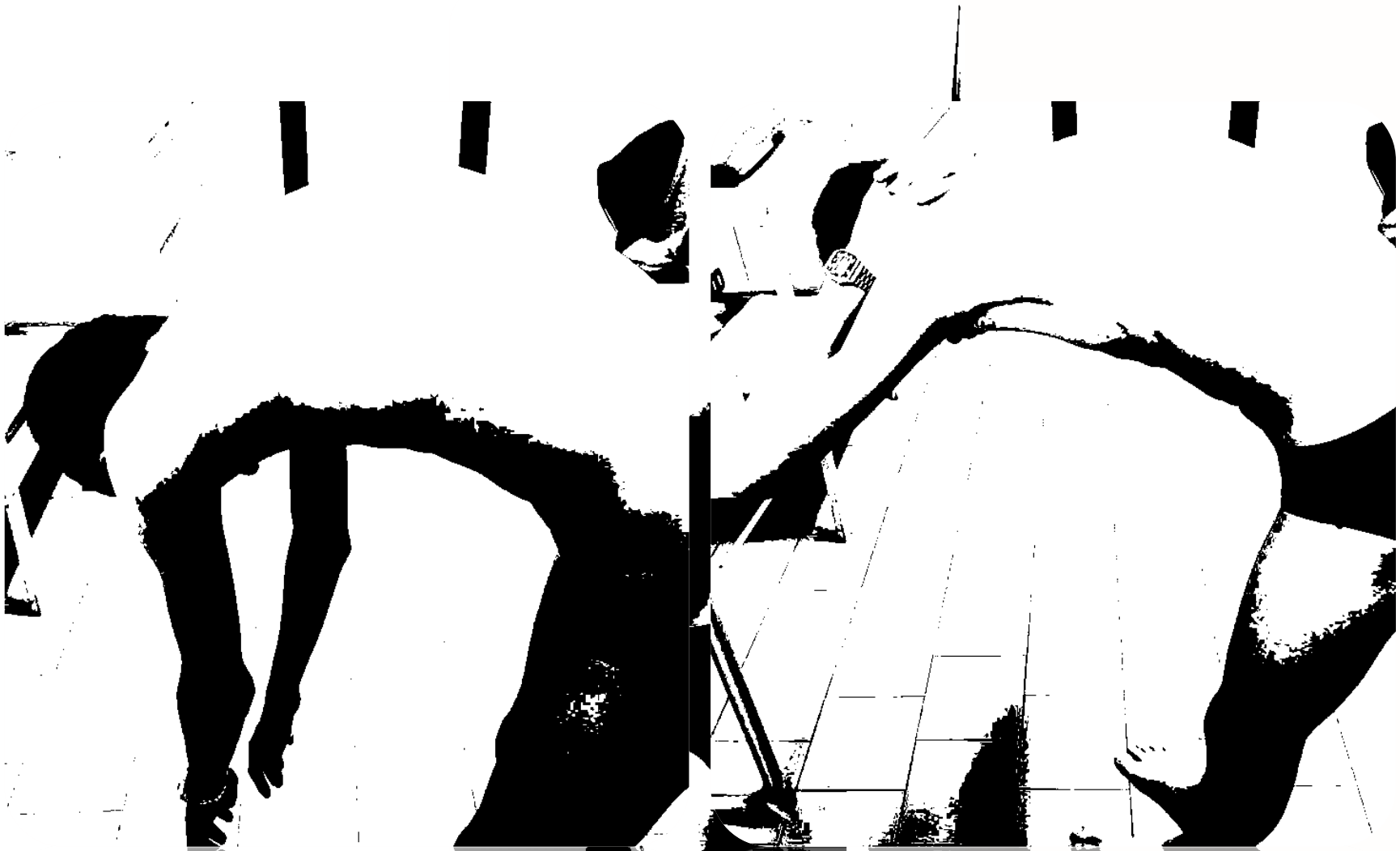
Spine (Phila Pa 1976). 1988 Mar;13(3):325-7.

The relationship between leg length discrepancy and lumbar facet orientation.

Froh R[1], Yong-Hing K, Cassidy JD, Houston CS.

ESAME OBIETTIVO

IPERCIFOSI

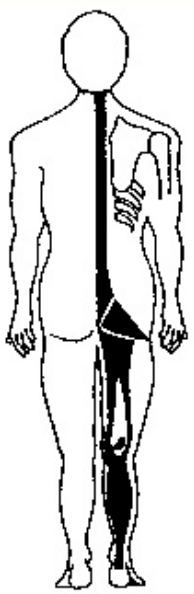


CORREGGIBILITA’

RIGIDITA’

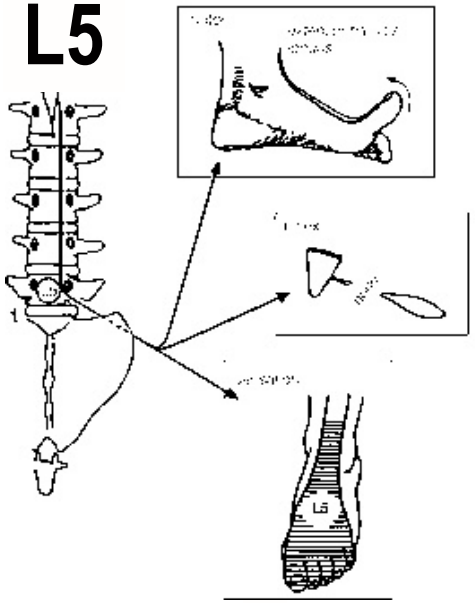
ACCORCIAMENTO CATENE POSTERIORI

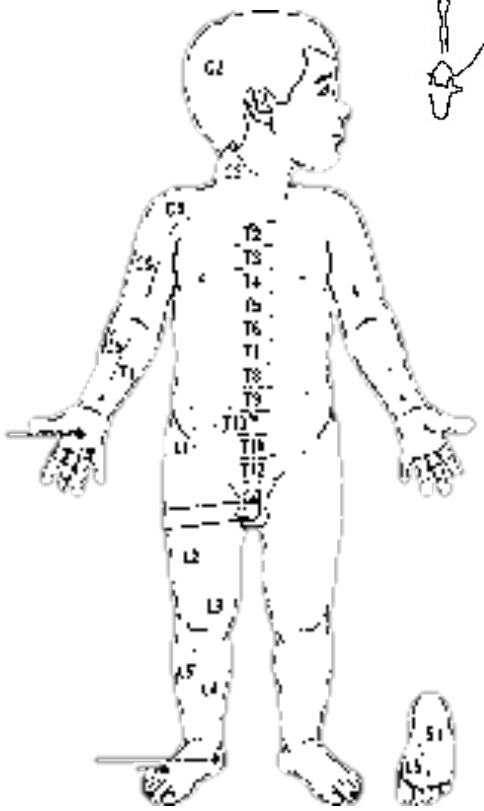
(ischiocrurali e lombopelvici)

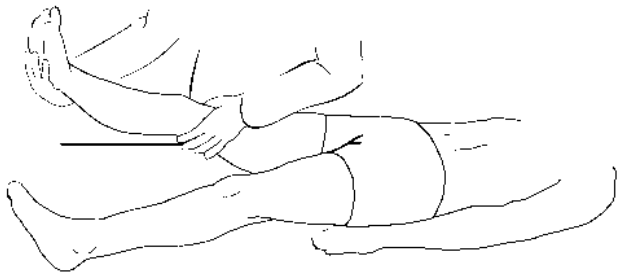


SEGNI NEUROLOGICI

L5

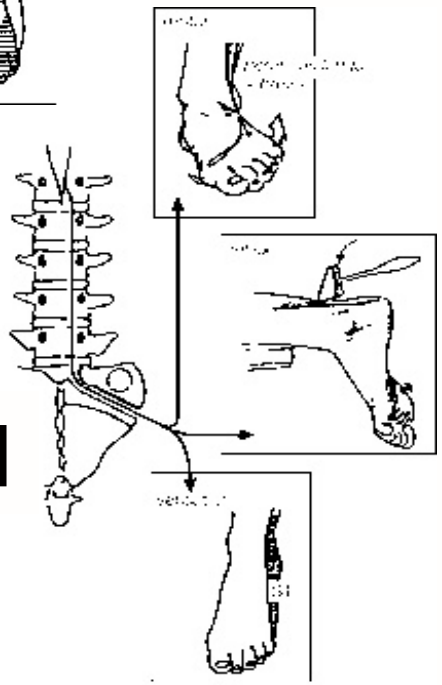


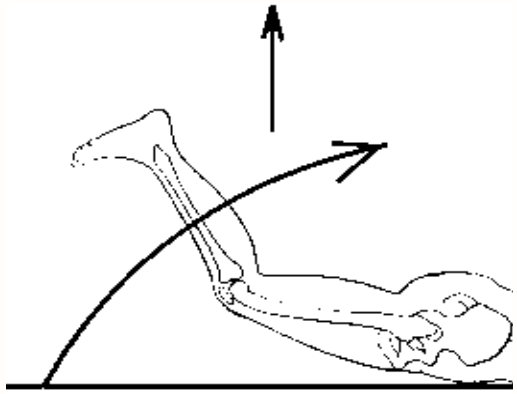




LASEGUE

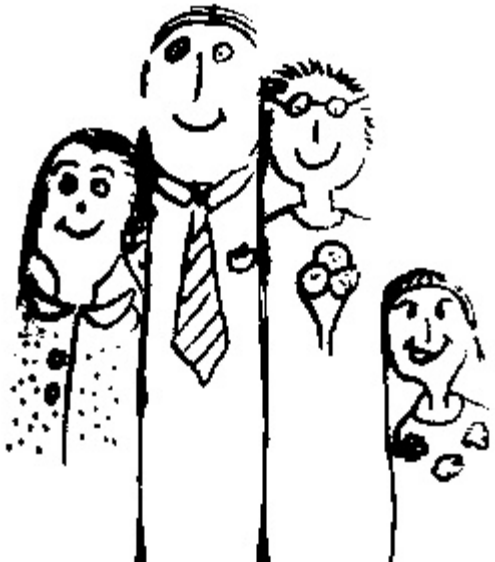
S1





WASSERMANN

MAL DI SCHIENA
NON EQUIVALE NECESSARIAMENTE
A PATOLOGIA DELLA COLONNA



FABER test - TRIGGER POINT SI

Low back pain in schoolchildren: the role of mechanical and psychosocial factors

K D Watson, A C Papageorgiou, G T Jones, S Taylor, D P M Symmons, A J Silman, G J Macfarlane

Arch Dis Child 2003;**88**:12–17

FATTORI MECCANICI

- **BMI**
- **Peso zaino scolastico**
- **Lavoro part time (adolescenti)**
- **Attività sportiva**

FATTORI PSICOLOGICI

- **Carattere**
  - **Negativo – Difficoltà relazionale**
  - **Positivo – Socievole**

39 SCUOLE

1376

FATTORI MECCANICI vs LBP

~~BMI~~

~~Peso zaino~~

Sport

~~Attività sedentaria~~

Table 1 Risk of LBP in relation to mechanical factors in quintiles using univariate analysis (n=1376)*

Mechanical factors	Total	No. with LBP	% LBP	Odds ratio*	(95% CI)
Body mass index					
12.2 to 17.1	263	52	19.7	1.0	(referent)
17.2 to 18.6	263	56	21.3	1.0	(0.7 to 1.6)
18.7 to 20.2	268	57	21.3	0.9	(0.6 to 1.4)
20.3 to 22.4	267	69	21.8	1.2	(0.8 to 1.8)
22.5 to 34.7	262	76	29.0	1.4	(0.9 to 2.1)
Average (5 day) load					
1.2 to 3.4 kg	216	48	22.2	1.0	(referent)
3.5 to 4.2 kg	217	52	23.9	1.2	(0.7 to 1.9)
4.3 to 5.0 kg	220	58	26.9	1.5	(0.9 to 2.3)
5.1 to 6.3 kg	210	47	22.4	1.1	(0.7 to 1.7)
6.4 to 18.0 kg	217	46	21.2	0.9	(0.6 to 1.4)
% body weight carried					
2.2 to 6.6%	214	58	27.1	1.0	(referent)
6.7 to 8.8%	211	54	25.6	1.0	(0.7 to 1.6)
8.9 to 10.5%	204	45	22.1	0.9	(0.5 to 1.4)
10.6 to 13.5%	209	46	22.0	0.9	(0.6 to 1.4)
13.6 to 32.1%	210	35	16.7	0.6	(0.4 to 1.0)

*ORs adjusted for age and gender in a logistic regression model.

Table 2 Risk of low back pain by total time spent participating in sports† (n=1376)

Time (min)	Total	No. with LBP	% LBP	Odds ratio*	(95% CI)
≤121	456	109	23.9	1.0	referent
121–240	451	102	22.6	1.1	(0.7 to 1.4)
>240	469	119	25.4	1.4	(1.02 to 1.9)

*ORs adjusted for age and gender in a logistic regression model.
†Sports included: football, cricket, basketball, swimming, hockey, tennis, badminton, squash, field sports, dancing, cross country running, rounders, gymnastics, rugby, horse riding, roller blading, mountain biking.

Table 3 Prevalence of LBP by time spent in minutes in sedentary activities during the past day (n=1376)*

Sedentary activities (min)	Total	No. with LBP	% with LBP	Odds ratio	(95% CI)
15 to 140	150	34	22.7	1.0	(referent)
141 to 210	167	38	23.8	1.0	(0.6 to 1.8)
211 to 330	152	39	25.7	1.2	(0.7 to 2.1)
>330	137	32	23.4	1.3	(0.7 to 2.3)

*ORs adjusted for age and gender (missing = 770) in a logistic regression model.

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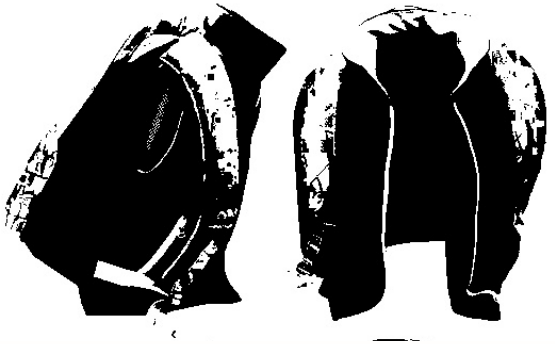
U.S. NEWS & WORLD REPORT

All I Want For Christmas Is a Ballistic Shield

Dec 8, 2012 4:45 AM EST

The latest high-tech gift for your college kid is a bulletproof backpack. But can they save lives? Eliza Shapiro reports.



ZAINETTO CON GIUBOTTO ANTIPROIETTILE

FATTORI PSICOLOGICI vs LBP

Carattere negativo

~~**Carattere positivo**~~

Sintomi somatici

(mal di testa, mal di pancia, stanchezza diurna, raffreddori)

Table 4 Risk of LBP in relation to psychosocial factors (SDQ) using univariate analysis (n=1376)*

SDQ dimension	Total	No. with LBP	% LBP	Odds ratio*	(95% CI)
Difficulties					
Hyperactivity/inattention					
Low	549	109	19.9	1.0	(referent)
Medium	450	113	25.1	1.3	(1.0 to 1.7)
High	376	108	28.7	1.6	(1.2 to 2.2)
Conduct problems					
Low	462	67	14.5	1.0	(referent)
Medium	582	150	28.2	2.2	(1.6 to 3.0)
High	331	113	34.1	3.5	(2.4 to 4.9)
Emotional problems					
Low	618	100	16.2	1.0	(referent)
Medium	400	91	22.8	1.5	(1.1 to 2.1)
High	357	139	38.9	3.1	(2.3 to 4.3)
Peer problems					
Low	734	156	21.3	1.0	(referent)
Medium	286	78	27.3	1.4	(1.0 to 1.9)
High	355	96	27.0	1.5	(1.1 to 2.0)
Strengths					
Prosocial behaviour					
High	346	89	25.7	1.0	(referent)
Medium	508	134	26.8	1.1	(0.8 to 1.5)
Low	521	107	20.5	0.8	(0.6 to 1.2)

*ORs adjusted for age and gender in a logistic regression model (missing = 1).

Table 5 Risk of LBP in relation to reporting other common childhood complaints using univariate analysis (n=1376)*

Common childhood complaints reported (in past month)†	Total	No. with LBP	% LBP	Odds ratio*	(95% CI)
Headache					
No days	471	67	19.9	1.0	(referent)
1–2 days	520	118	25.1	1.7	(1.2 to 2.4)
More than 3 days	366	142	28.7	3.5	(2.5 to 5.0)
(missing = 19)					
Abdominal pain					
No days	640	105	14.5	1.0	(referent)
1–2 days	576	167	28.2	1.9	(1.4 to 2.5)
More than 3 days	136	53	34.1	3.1	(2.1 to 4.7)
(missing = 24)					
Sore throats					
No days	511	79	16.2	1.0	(referent)
1–2 days	470	123	22.8	1.8	(1.3 to 2.5)
More than 3 days	376	127	38.9	2.7	(1.9 to 3.7)
(missing = 19)					
Day time tiredness					
Low	550	80	21.3	1.0	(referent)
Medium	374	87	27.3	1.7	(1.2 to 2.4)
High	436	156	27.0	3.1	(2.3 to 4.2)
(missing = 16)					

*ORs adjusted for age and gender in a logistic regression model.
†Daytime tiredness measured using VAS.

ASSOCIAZIONE DI PIU' FATTORI

AUMENTO ESPONENZIALE CORRELAZIONE CON MAL DI SCHIENA

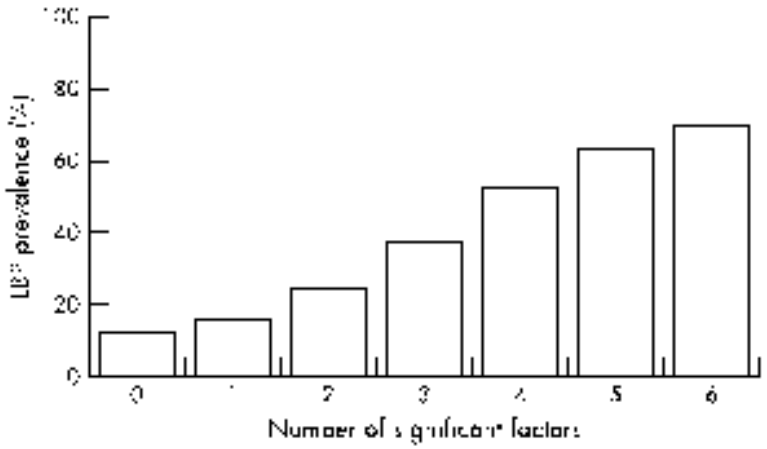


Table 6 Risk of low back pain in relation to positive associations (univariate) using a multivariate model

Positive factors on univariate analysis	Odds ratio	(95% CI)*
Hyperactivity/inattention		
Low	21.3	(referent)
Medium	0.8	(0.6 to 1.2)
High	0.8	(0.5 to 1.2)
Conduct problems		
Low	1.3	(referent)
Medium	1.9	(1.3 to 2.7)
High	2.4	(1.6 to 3.8)
Emotional problems		
Low	1.3	(referent)
Medium	1.1	(0.8 to 1.6)
High	2.0	(1.4 to 2.9)
Peer problems		
Low	1.3	(referent)
Medium	1.2	(0.8 to 1.7)
High	1.3	(0.7 to 1.4)
Headache		
No days	1.3	(referent)
1–2 days	1.3	(0.9 to 1.8)
More than 3 days	1.8	(1.2 to 2.7)
Abdominal pain		
No days	1.3	(referent)
1–2 days	1.2	(0.9 to 1.7)
More than 3 days	1.4	(0.9 to 2.4)
Sore throats		
No days	1.3	(referent)
1–2 days	1.4	(0.96 to 2.0)
More than 3 days	1.7	(1.2 to 2.5)
Daytime tiredness		
No days	1.3	(referent)
1–2 days	1.5	(1.02 to 2.2)
More than 3 days	1.9	(1.3 to 2.8)
Part time job		
No	1.3	(referent)
Yes	1.4	(1.01 to 1.9)

*ORs adjusted for age and gender in a logistic regression model

L'ABUSO

ORIGINAL ARTICLE

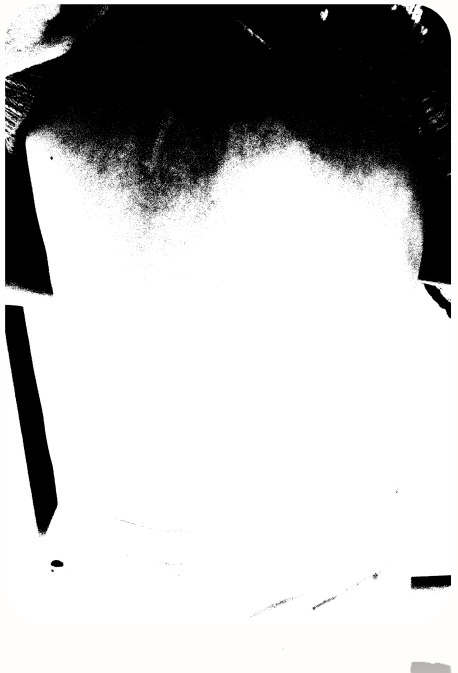
Child Abuse and Orthopaedic Injury Patterns: Analysis at a Level I Pediatric Trauma Center

Nirav K. Pandya, MD, Keith Baldwin, MD, MPH, MSPT,* Hayley Wolfgruber, BA,* Cindy W. Christian, MD,† Denis S. Drummond, MD,* and Harish S. Hosalkar, MD, MBMS (Ortho), FCPS (Ortho), DNB (Ortho)**

REALE INCIDENZA DIFFICILE DA DETERMINARE

I BAMBINI PIÙ PICCOLI SONO LE VITTIME PIÙ FREQUENTI

LA "RECIDIVA" È STIMATA TRA IL 30% ED IL 45%



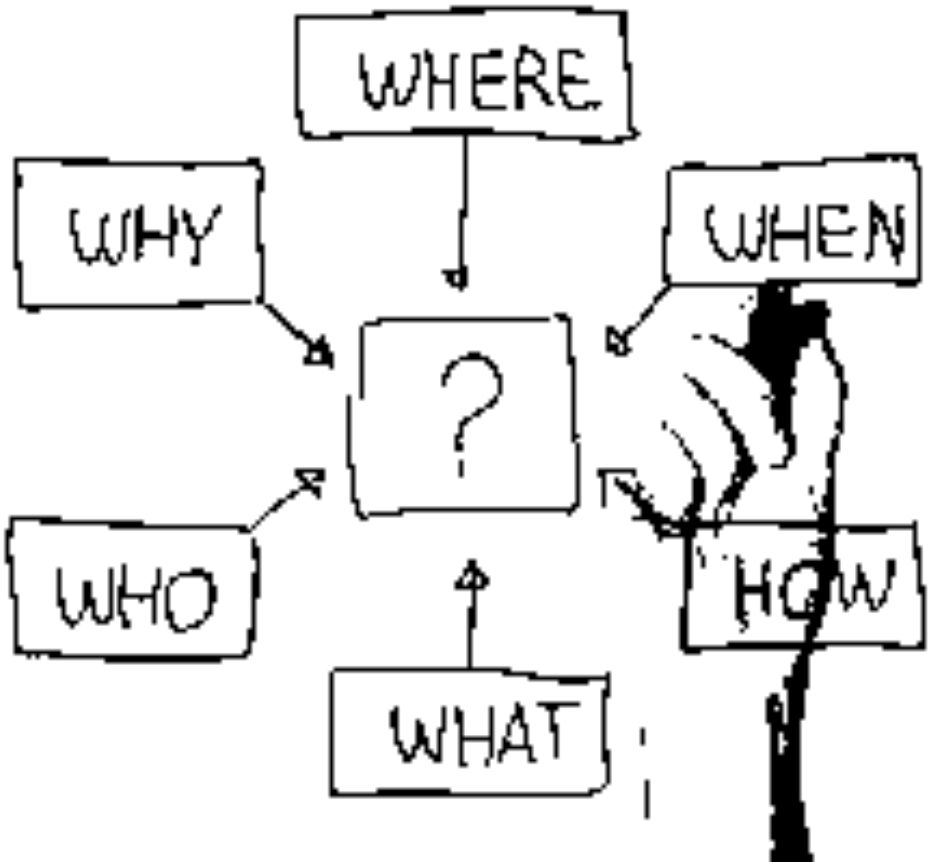
Dr. Google™
e-Diagnosis

MAMMA HO IL MAL DI SCHIENA

LO ZAINO E LO SPORT
IL SOVRAPPESO E LA SEDENTARIETA'
"…HA DOLORE PERCHE' HA LA SCOLIOSI…"

PER AVERE DELLE RISPOSTE

.. QUANDO PREOCCUPARSI ?
.. COME COMPORTARSI ?



QUANDO PREOCCUPARSI ?

Paziente pre-pubere in particolare < 5anni	Febbre, tachicardia perdita di peso ecchimosi linfoadenopatia o massa addominale
Disabilità funzionale	Alterata Forma o mobilità della colonna vertebrale
Durata >4 settimane o dolore ricorrente o peggioramento del dolore	Rigidità della colonna
Rigidità mattutina	Zoppia o andatura alterata
Dolore notturno	Sintomi neurologici
	Disfunzioni vescicali o intestinali

Grattan-Smith PJ, Ryan MM, Procopis PG
Persistent or severe back pain and stiffness are ominous symptoms requiring prompt attention.
J Paediatr Child Health. 2000 Jun;36(3):208-12.

Journal of Paediatrics and Child Health

COME COMPORTARSI ?

ANAMNESI ED EO

NO SEGNI PATOLOGICI

DOLORE ASPECIFICO

RIPOSO, CORREZIONE POSTURE SCORRETTE, FKT, ANALGESICI, SORVEGLIANZA

MIGLIORAMENTO

CONTROLLI

NO MIGLIORAMENTO

SEGNI PATOLOGICI, RED FLAGS (DOLORE NOTTURNO, SINTOMI SISTEMICI, DOLORI PERSISTENTI)

RADIOGRAFIA, ES LABORATORIO

RISULTATO NEGATIVO

RMN - TC

RISULTATO NEGATIVO

TERAPIA DEL DOLORE E RIVALUTARE

RISULTATO POSITIVO

RISULTATO POSITIVO

TRATTAMENTO IN BASE A DIAGNOSI

RISPOSTE

APPROCCIO

INTERDISCIPLINARE

PRIMO FILTRO

POSNA
The Pediatric Orthopaedic Society of North America

"…You should examine your child's spine regularly, starting in infancy, and talk to a health care professional about any concerns.
Regular pediatric examinations also can identify cases of low back pain…"

CONSENSUS CONFERENCE AAOS 2013

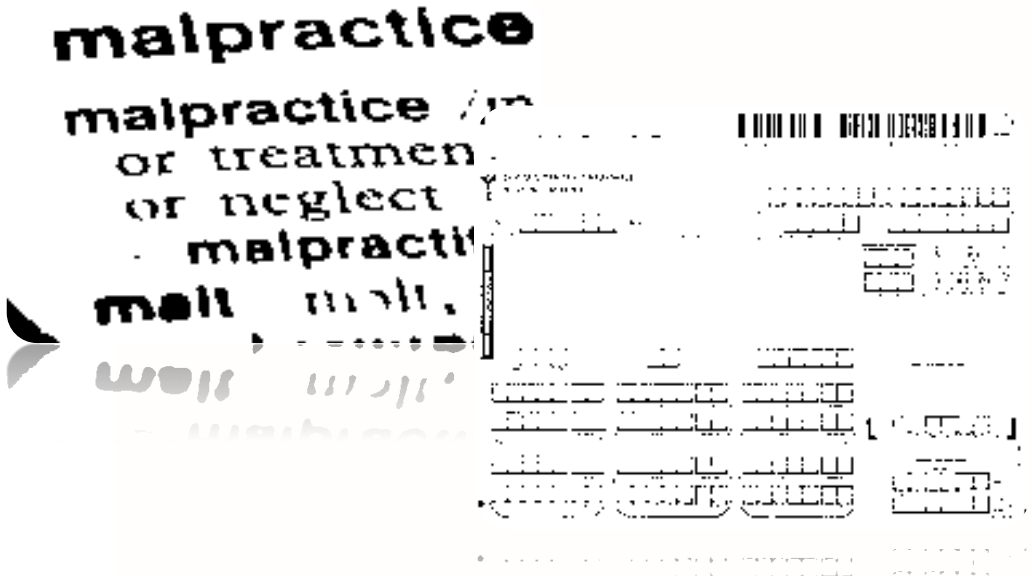
CONCLUSIONI

ANAMNESI MIRATA ed

ESAME CLINICO MIRATO

<u>CLINICAL GOVERNANCE</u> per

DIAGNOSTICA MIRATA



Scoliosi idiopatiche	G. Costanzo
Scoliosi congenite e malformative	M. Crostelli
Traumi	O. Mazza
Tumori	O. Moreschini
Spondilolistesi	A. Ramieri
Spondilodisciti	C. Ajassa
Aspetti reumatologici	M. Duse
Cause viscerali-chirurgiche	D. Cozzi
Cause psico-somatiche	V. Leuzzi G. Colafrancesco

GRAZIE

…AUGURI AI PAPA’ E AI GIUSEPPE