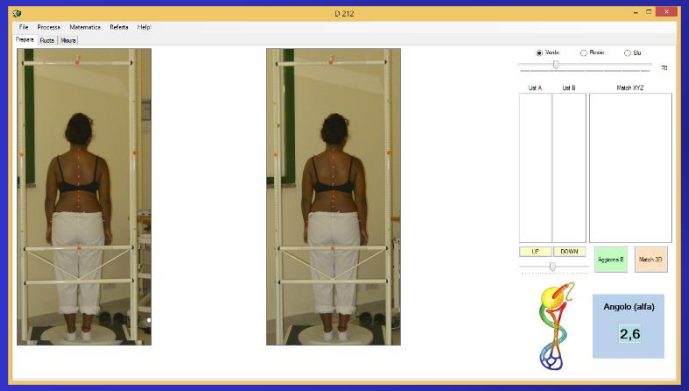
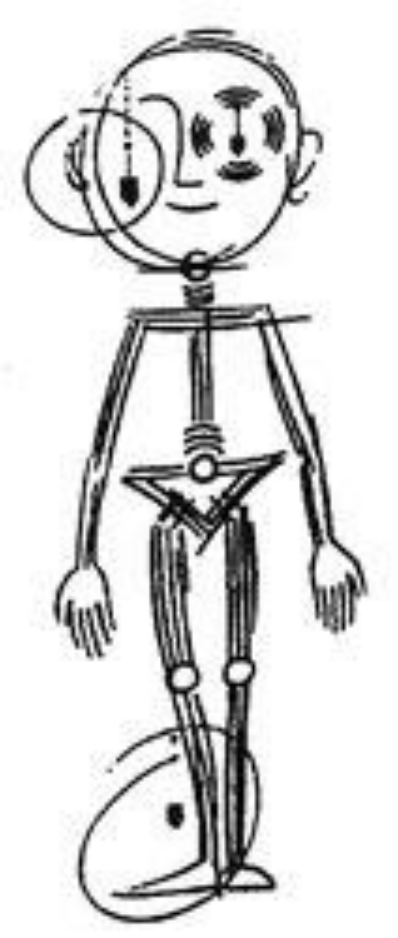
Una applicazione stereofotometrica per valutazioni cliniche in ambito fisiatrico



A. Manelli; R. Storaci; M. Raspanti

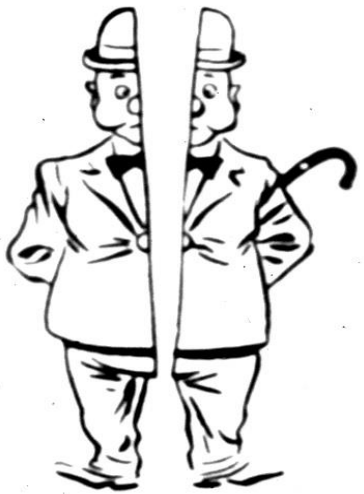


La **posturologia** è una branca della medicina che studia l'essere umano ed in particolare…

…come questo *si pone in relazione allo spazio*, alle cose ed alle persone che lo circondano.

Postura Ideale = Assenza di tensioni e Rapporti armoniosi = Assenza di dolori = Simmetria

La postura in ortostatismo

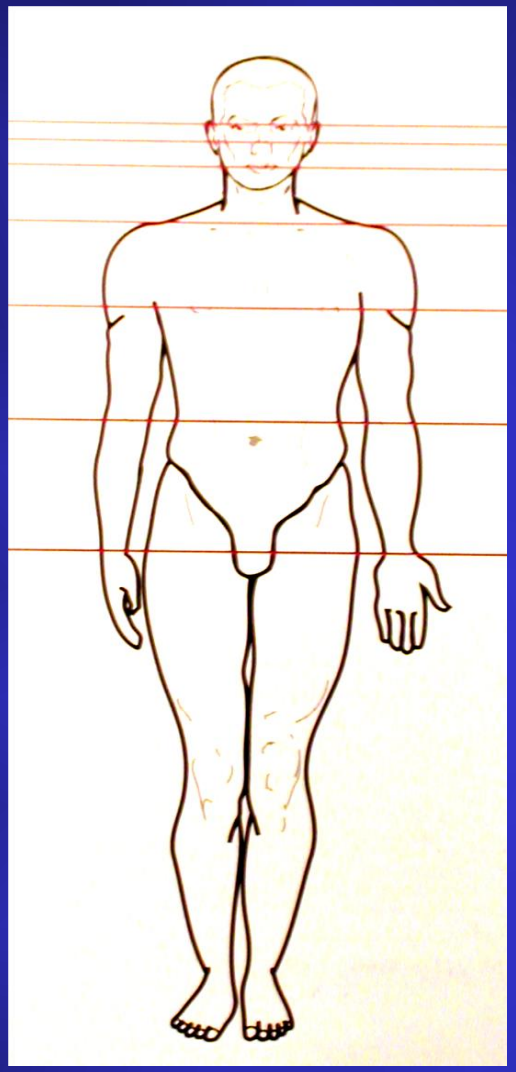


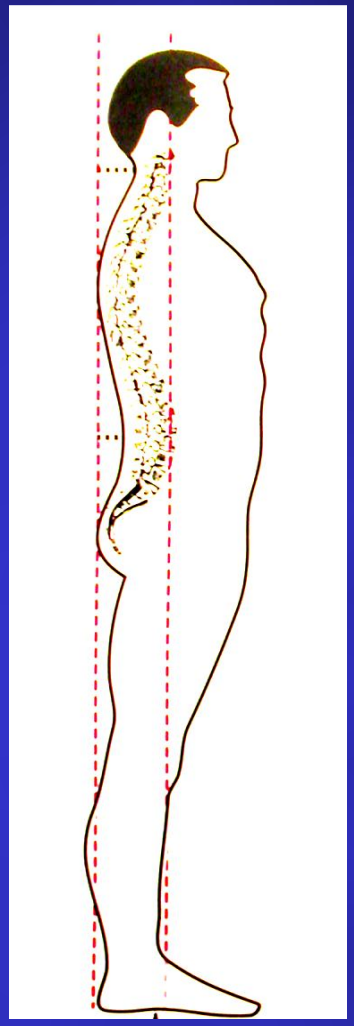
Piano sagittale mediano

Piano frontale o coronale

Piano trasversale o orizzontale

La postura ideale in ortostatismo





La postura patologica in ortostatismo: esempi

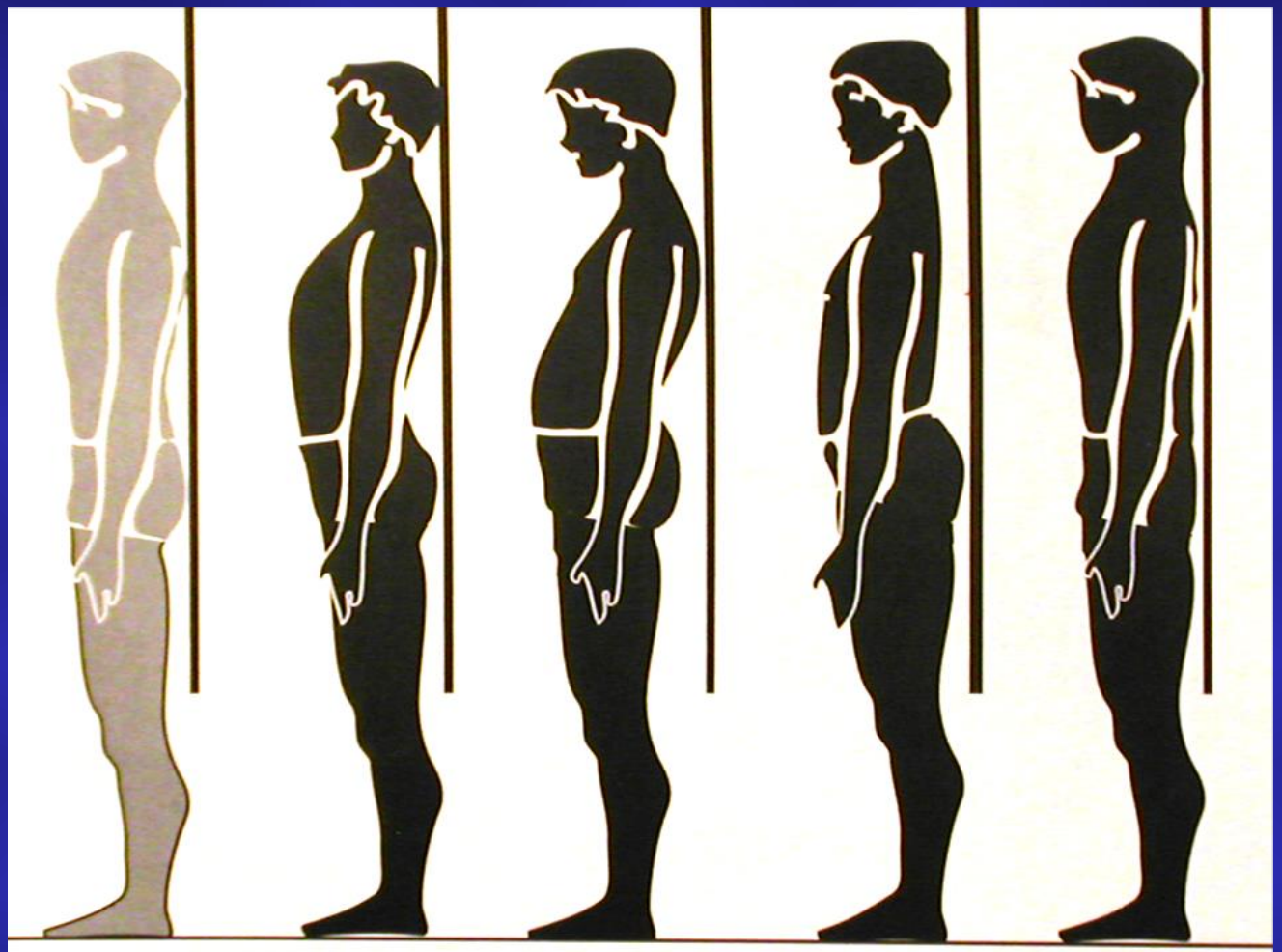
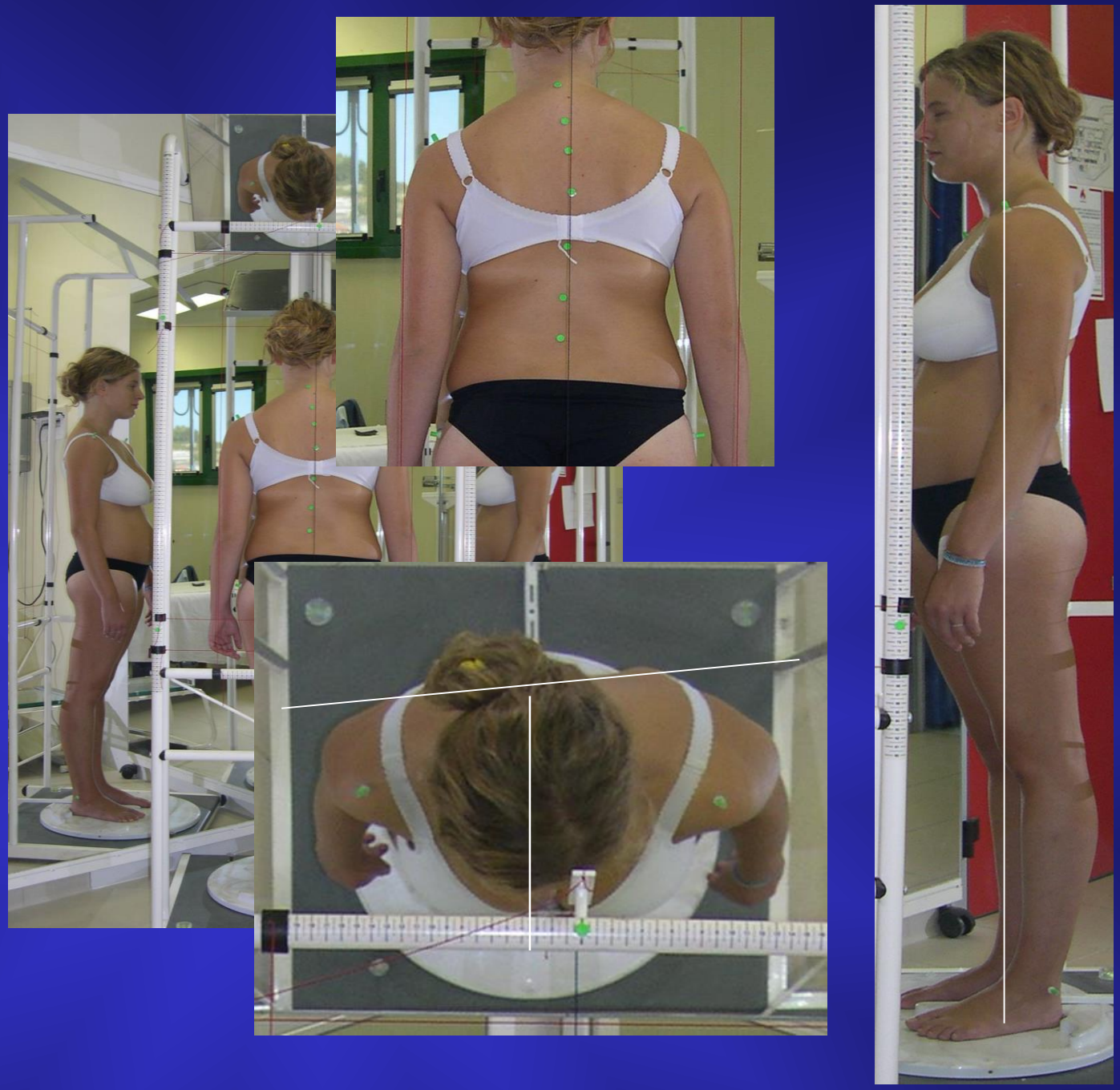


Fig. 1-5. SQUILIBRI DEL SISTEMA TONICO POSTURALE DI PROFILO



X

Y

Z

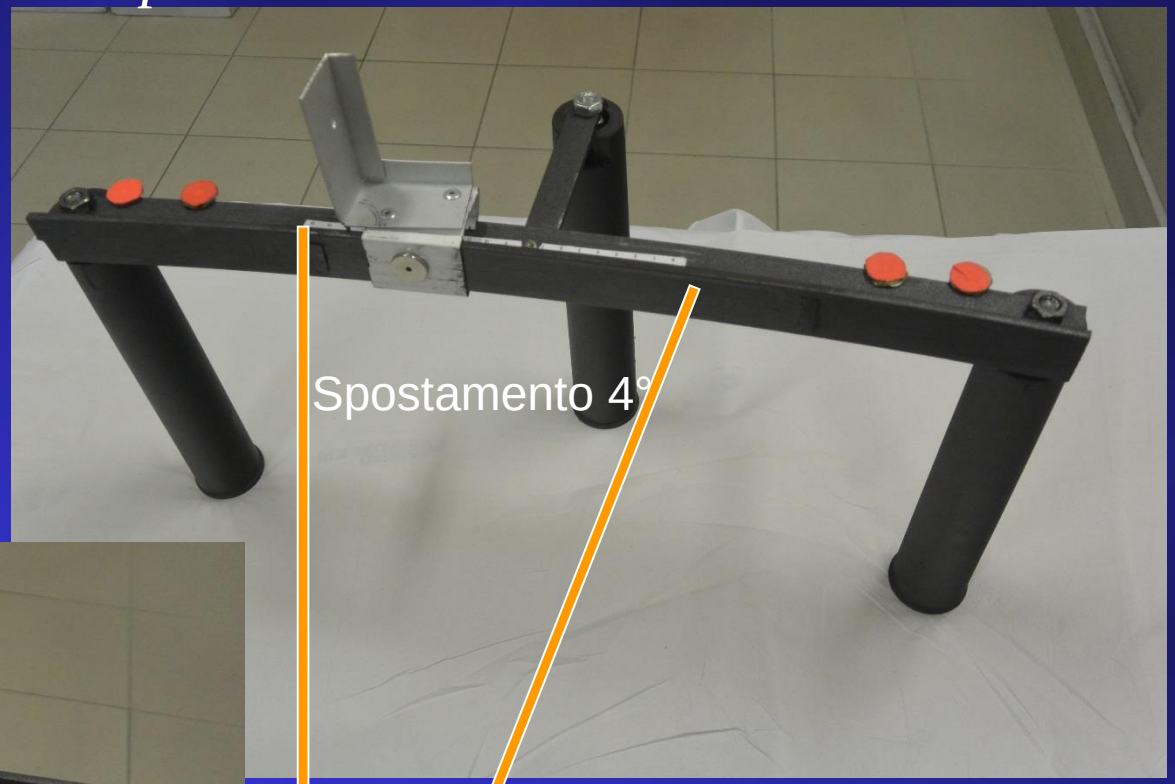
Stereoscopia

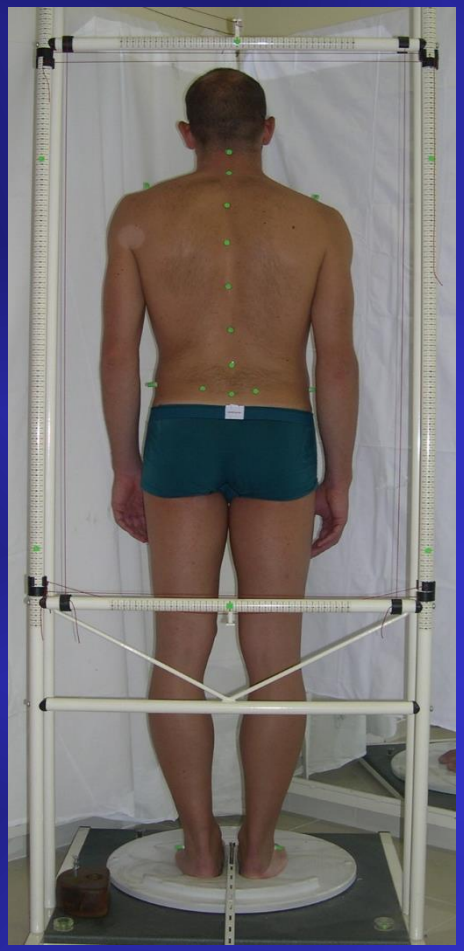
Posizionamento fotocamera

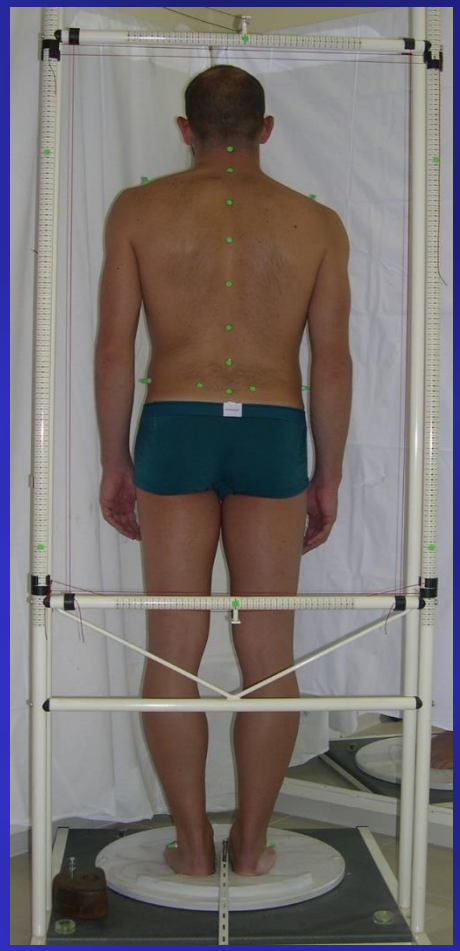
Centro di rotazione

Spostamento 4°

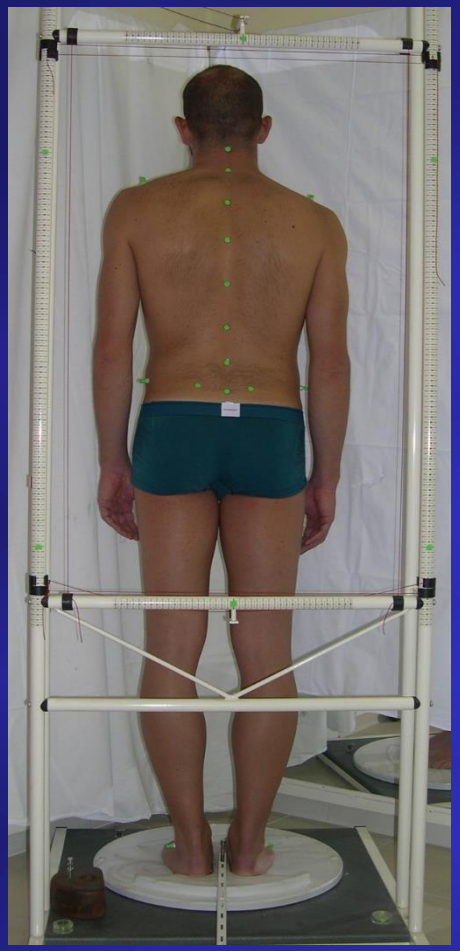
Stereoscopia







cromofago.exe
estrai colori
Alessandro Manelli



x

Immagine (RGB):

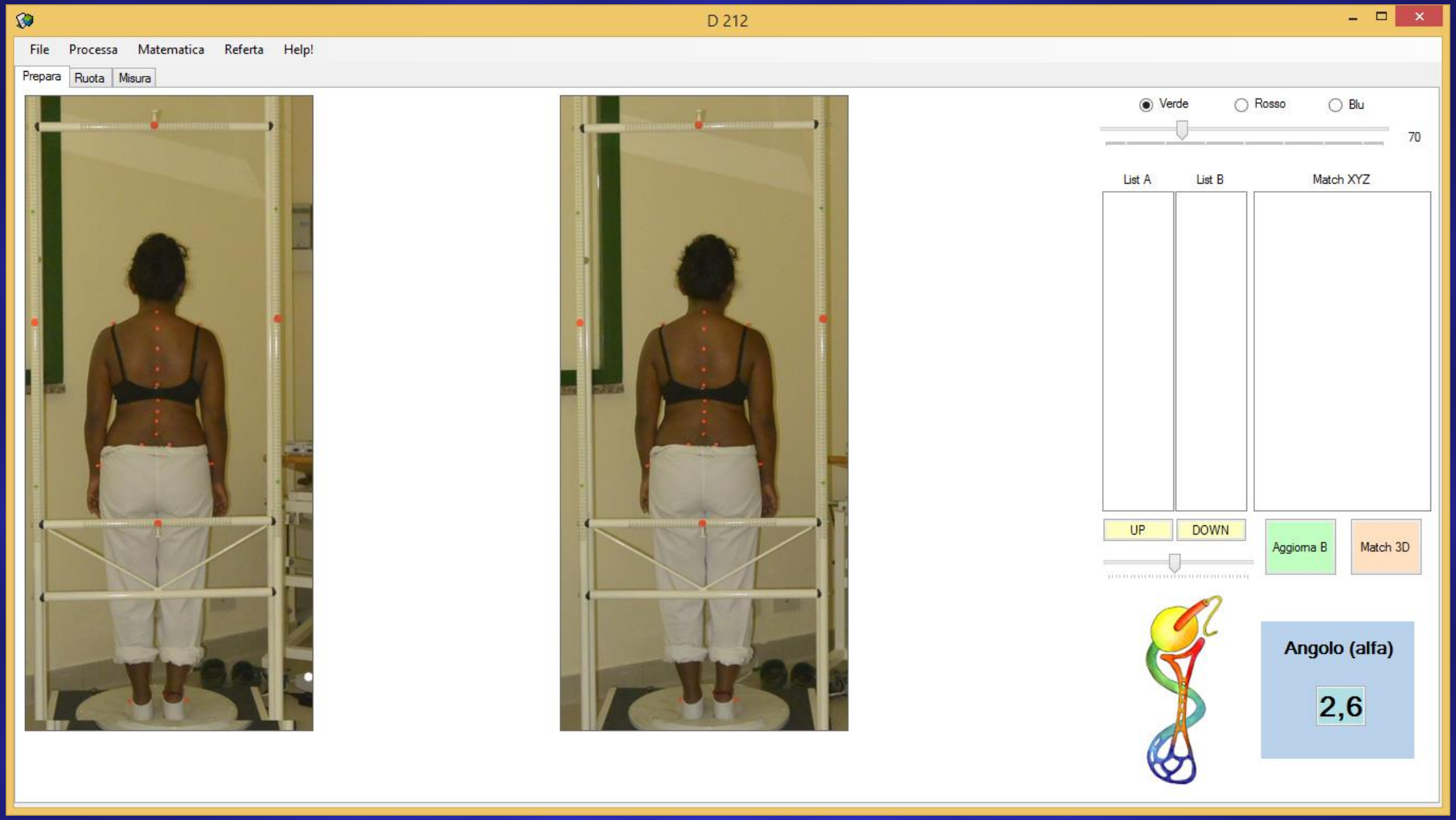
If [Green(px) – X] > Red(px)
And [Green(px) – X] > Blue(px)
Then color(px) = Black
Else color(px) = White

y

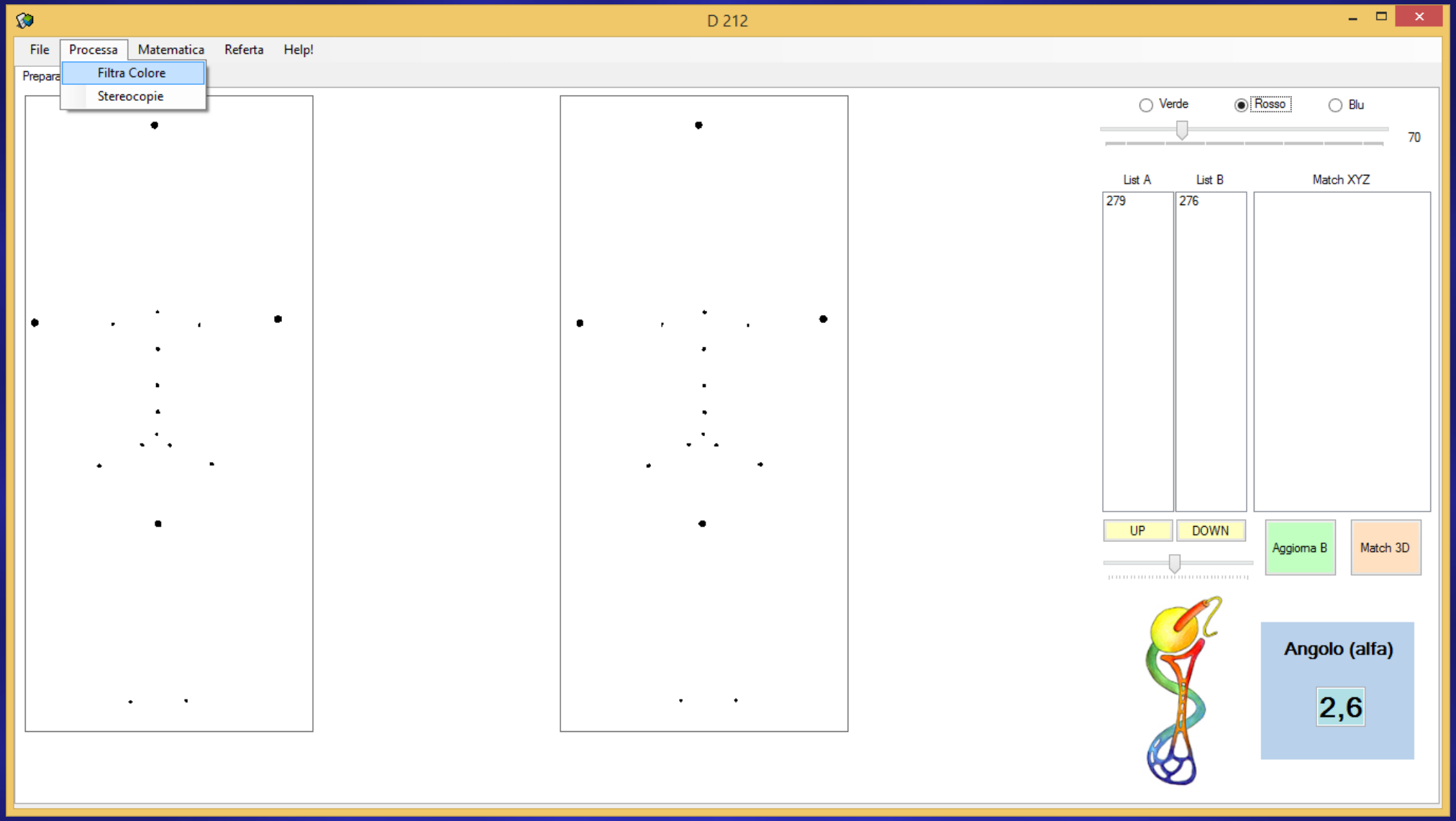
Dove px è un pixel (x, y, colour)
X è un numero (da 1 a 256)
Il colore (red, green, blue)
È rappresentato da un numero tra 1 e 256

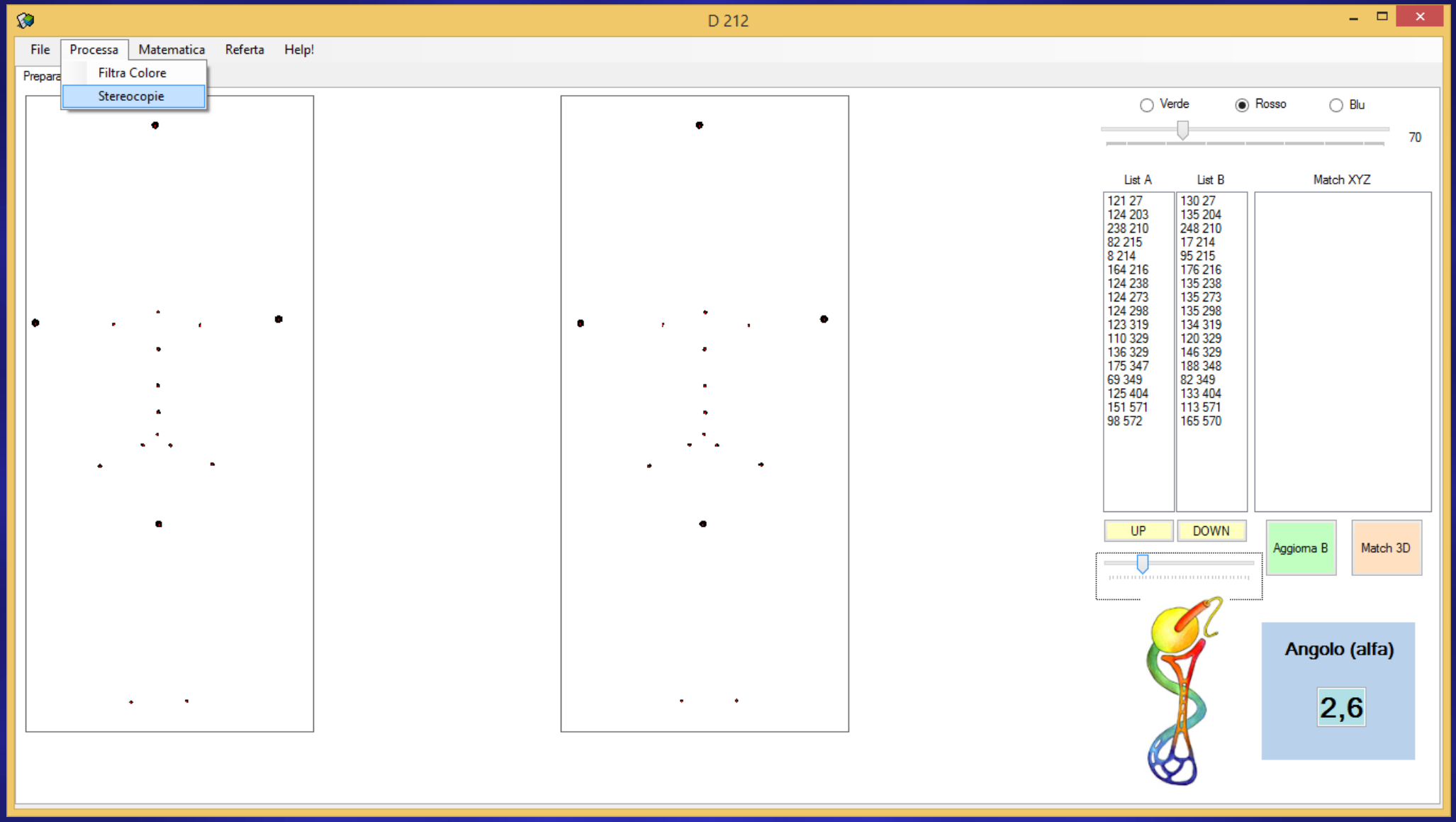
colore

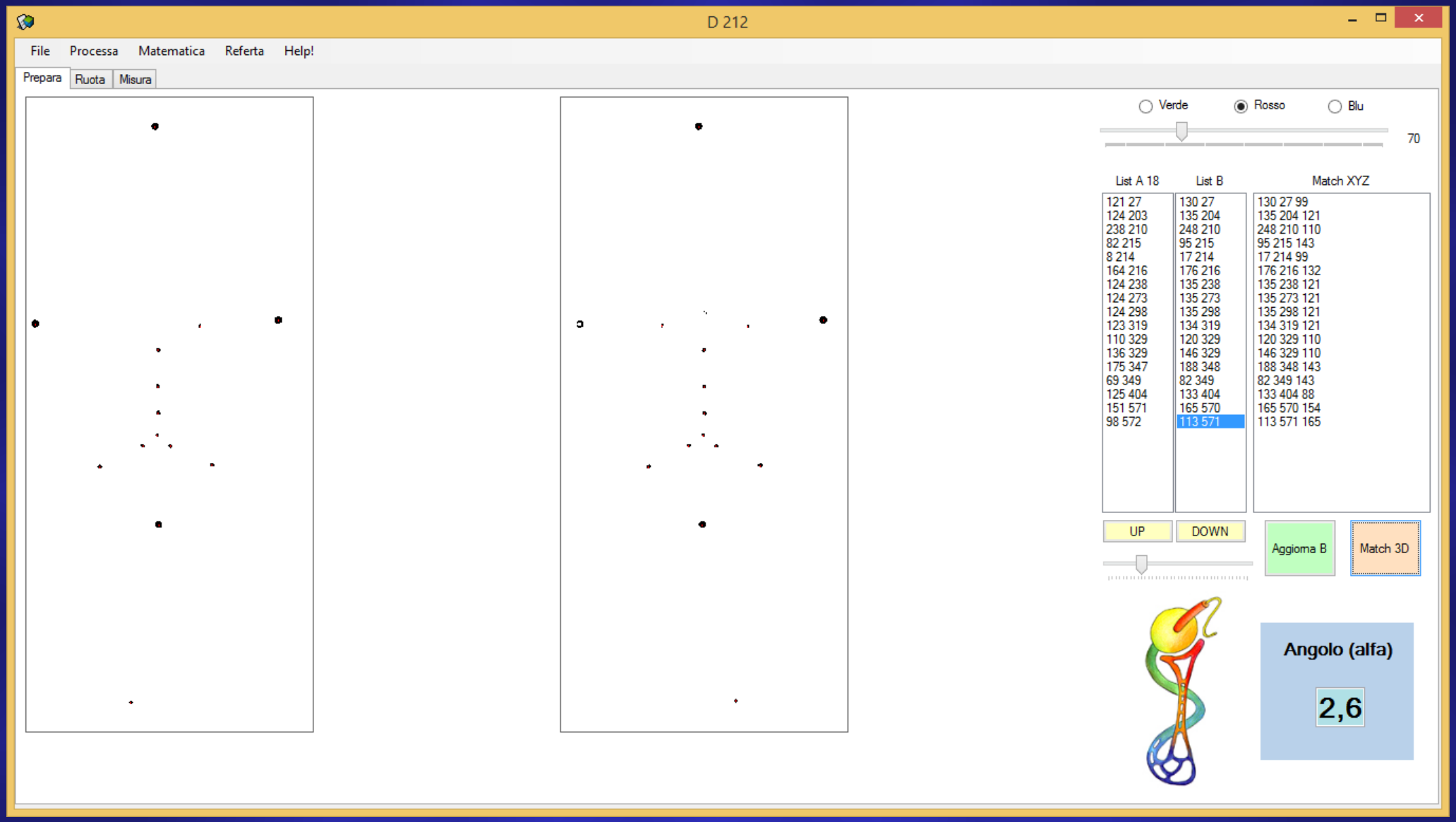
cromofago.exe
estrai colori
Alessandro Manelli

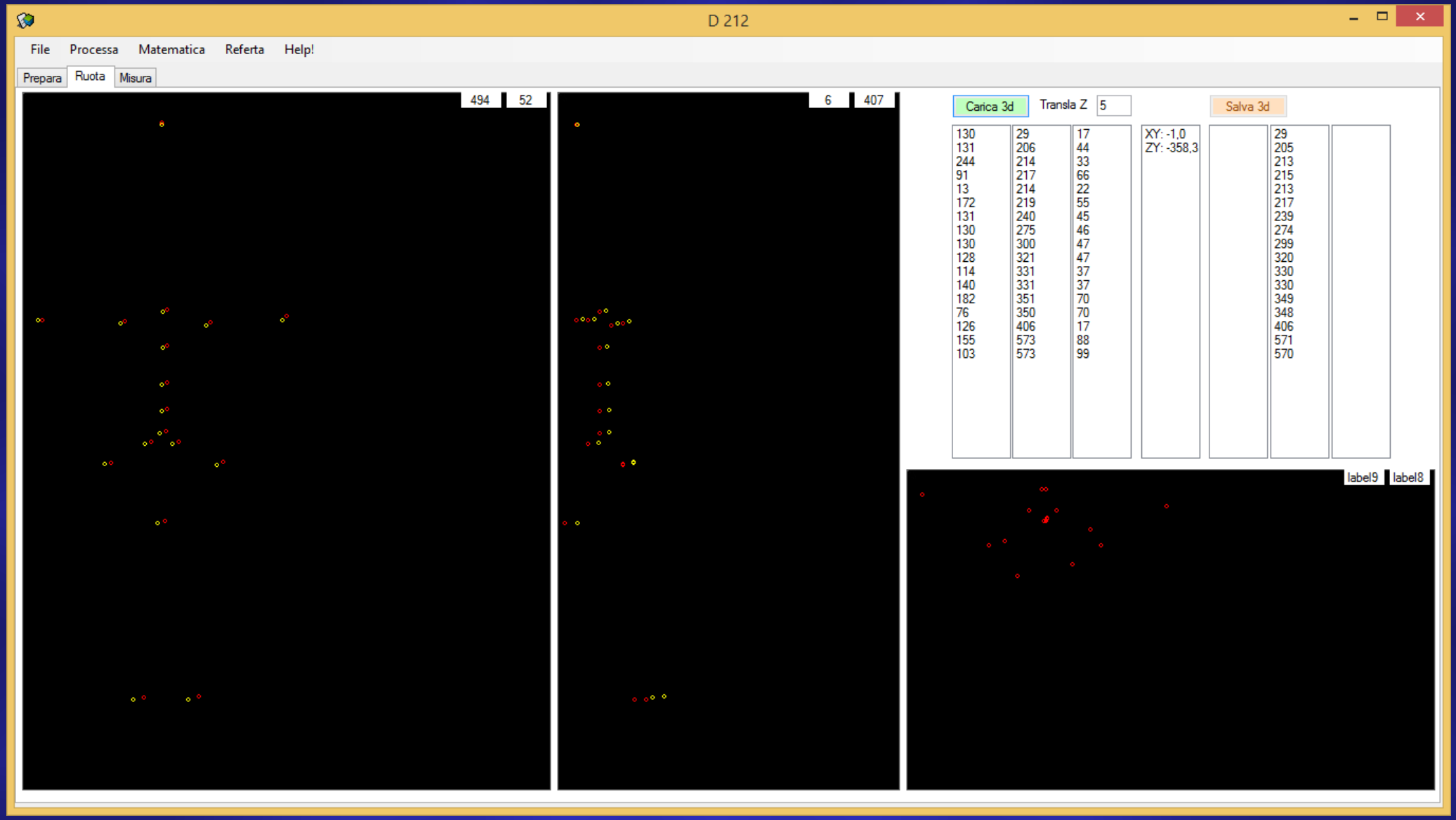


cromofago.exe
estrai colori
Alessandro Manelli




D 212
File
Processa
Matematica
Referta
Help!
Prepara
Filtra Colore
Stereocopie
Verde
Rosso
Blu
70
List A
List B
Match XYZ
121 27
124 203
238 210
82 215
8 214
164 216
124 238
124 273
124 298
123 319
110 329
136 329
175 347
69 349
125 404
151 571
98 572
130 27
135 204
248 210
17 214
95 215
176 216
135 238
135 273
135 298
134 319
120 329
146 329
188 348
82 349
133 404
113 571
165 570
UP
DOWN
Aggioma B
Match 3D
Angolo (alfa)
2,6


D 212
File
Processa
Matematica
Referta
Help!
Prepara
Ruota
Misura
Verde
Rosso
Blu
70
List A 18
List B
Match XYZ
121 27
124 203
238 210
82 215
8 214
164 216
124 238
124 273
124 298
123 319
110 329
136 329
175 347
69 349
125 404
151 571
98 572
130 27
135 204
248 210
95 215
17 214
176 216
135 238
135 273
135 298
134 319
120 329
146 329
188 348
82 349
133 404
165 570
113 571
130 27 99
135 204 121
248 210 110
95 215 143
17 214 99
176 216 132
135 238 121
135 273 121
135 298 121
134 319 121
120 329 110
146 329 110
188 348 143
82 349 143
133 404 88
165 570 154
113 571 165
UP
DOWN
Aggioma B
Match 3D
Angolo (alfa)
2,6


D 212
File
Processa
Matematica
Referta
Help!
Prepara
Ruota
Misura
494
52
6
407
Carica 3d
Transla Z
5
Salva 3d
130 131 244 91 13 172 131 130 130 128 114 140 182 76 126 155 103
29 206 214 217 214 219 240 275 300 321 331 331 351 350 406 573 573
17 44 33 66 22 55 45 46 47 47 37 37 70 70 17 88 99
XY: -1,0
ZY: -358,3
29 205 213 215 213 217 239 274 299 320 330 330 349 348 406 571 570
label9
label8

D 212

File Processa Matematica Referta Help!

Prepara Ruota Misura

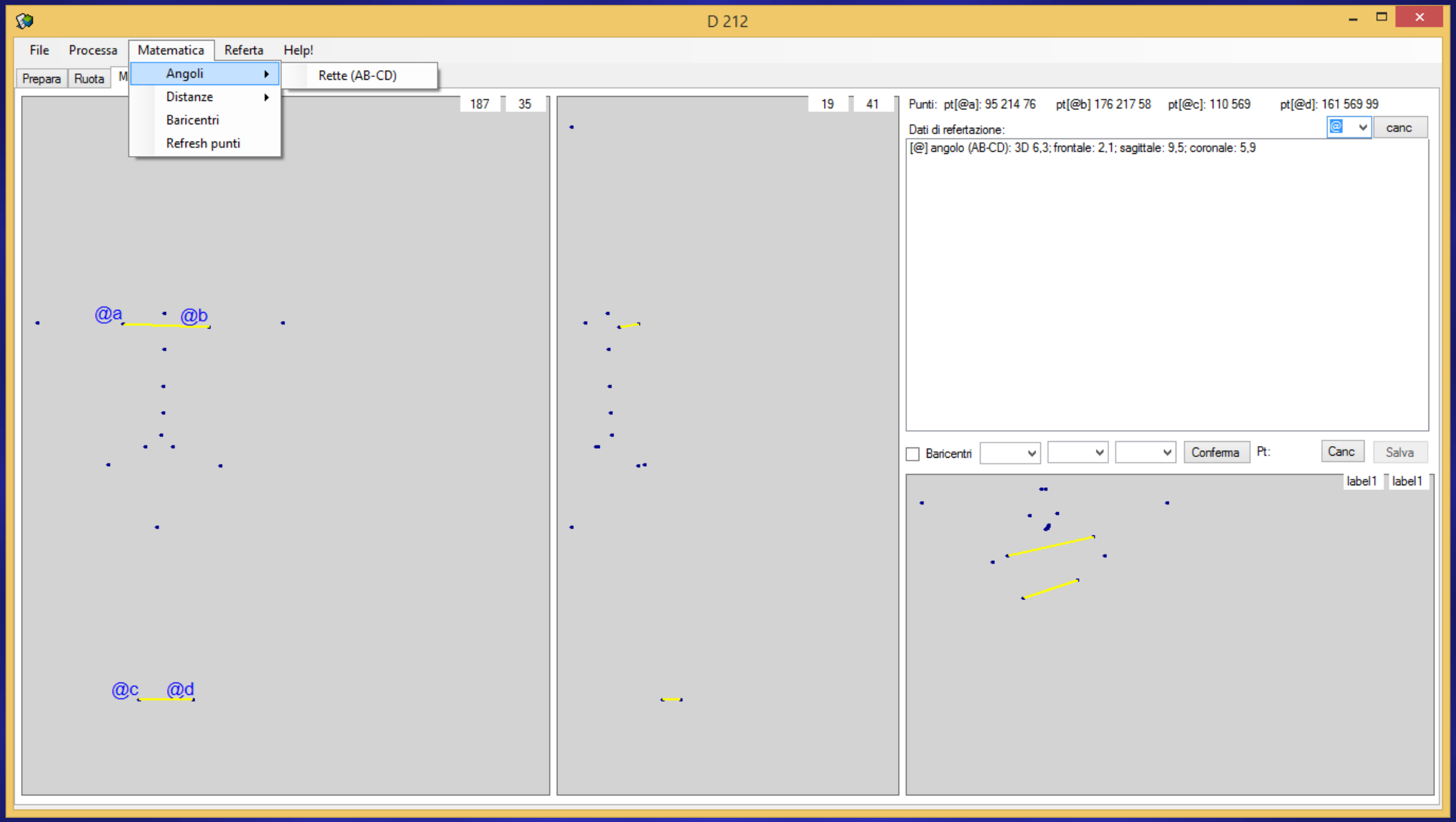
424 515

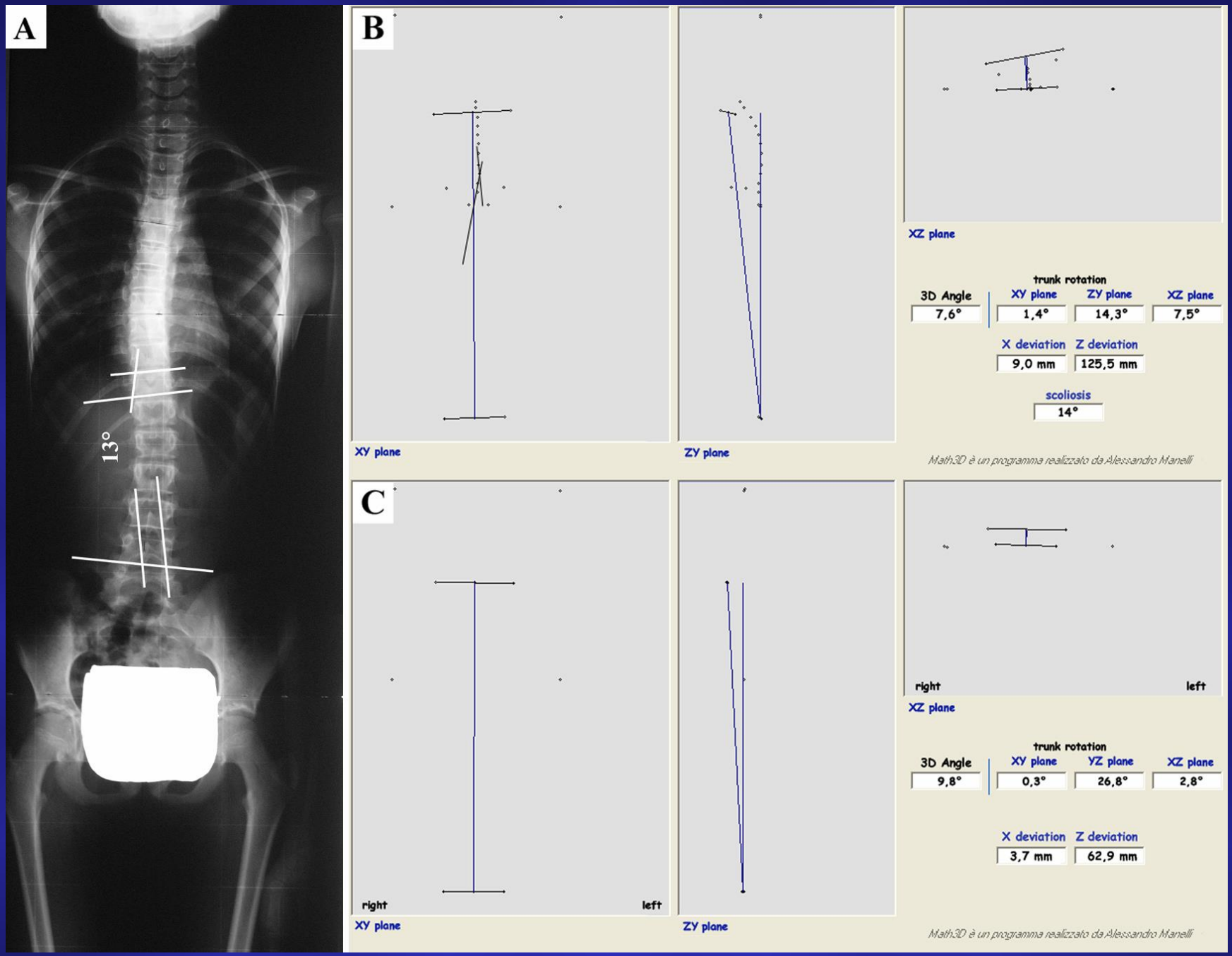
307 287

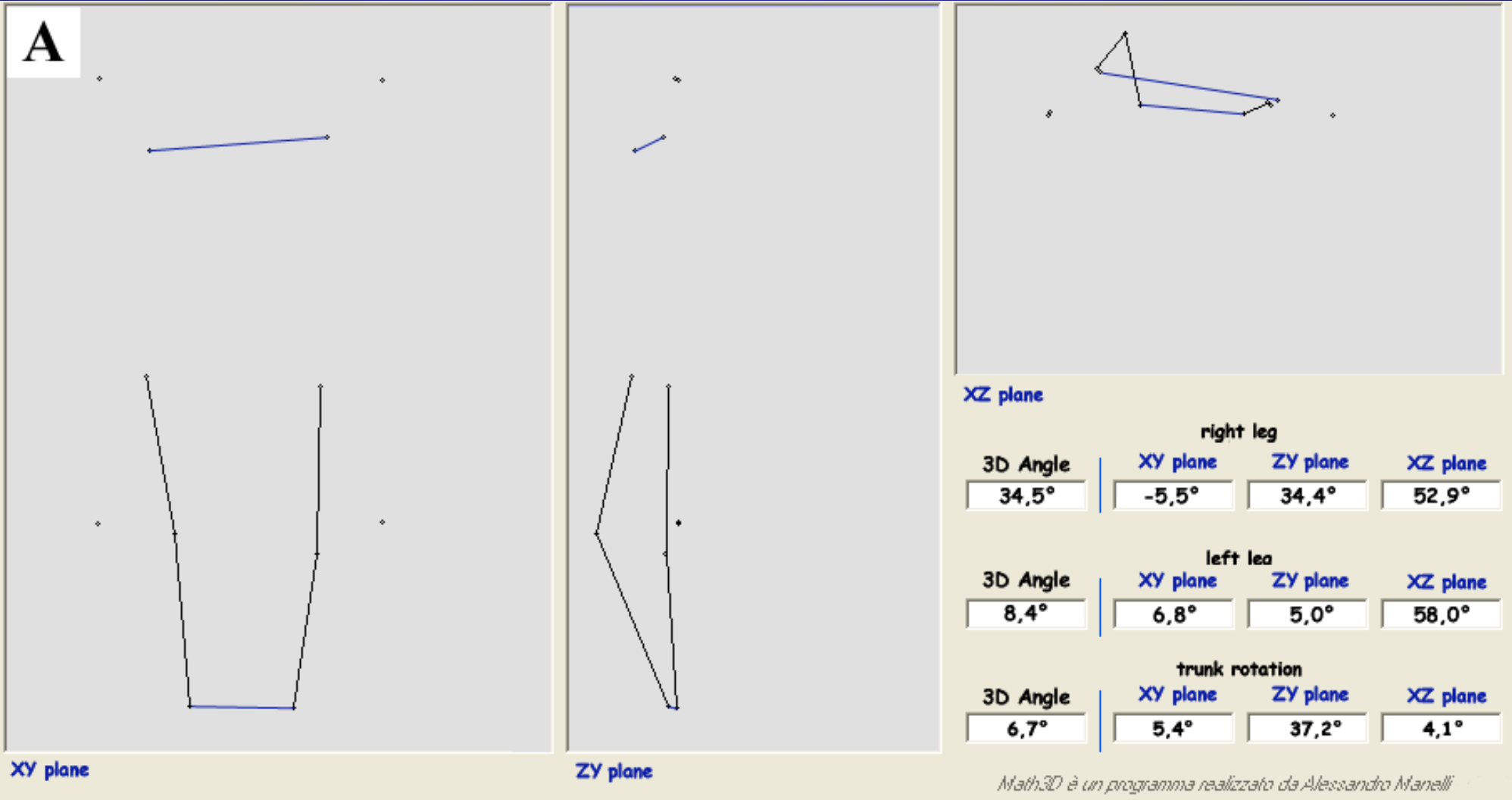
Carica 3d Transla Z 5 Salva 3d

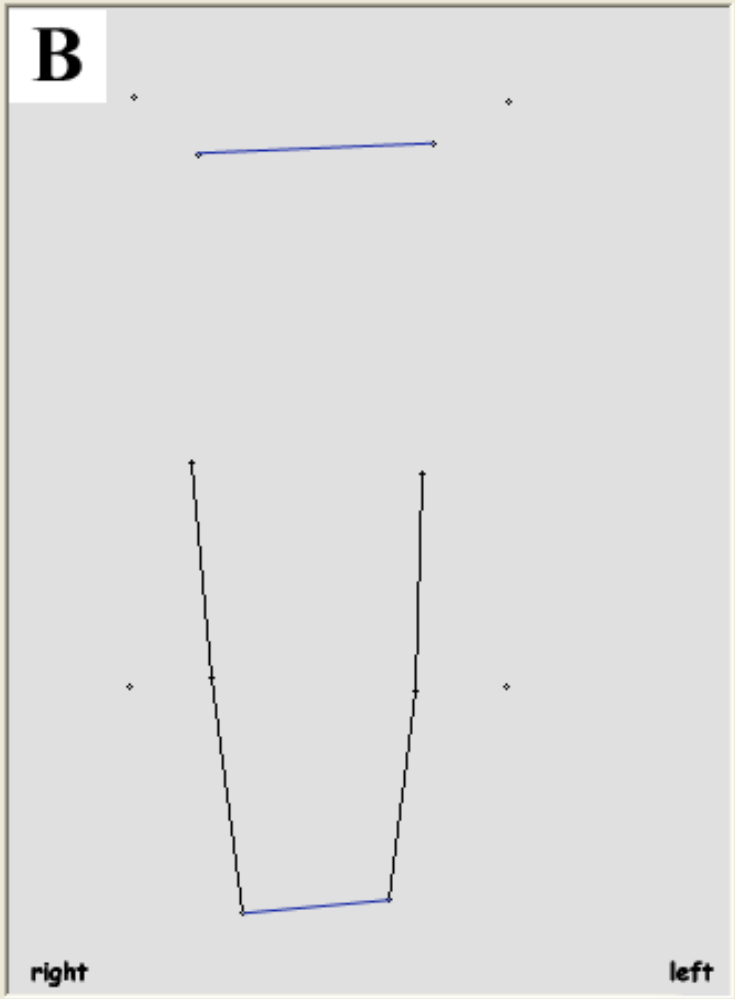
130	29	17	XY: -1,0	131	29	11
131	206	44	ZY: -358,3	133	205	38
244	214	33	XZ: 2,7	245	213	21
91	217	66		94	215	62
13	214	22		14	213	21
172	219	55		174	217	47
131	240	45		133	239	39
130	275	46		132	274	40
130	300	47		132	299	41
128	321	47		130	320	41
114	331	37		116	330	32
140	331	37		142	330	30
182	351	70		185	349	61
76	350	70		79	348	66
126	406	17		127	406	11
155	573	88		159	571	81
103	573	99		108	570	94

246 32

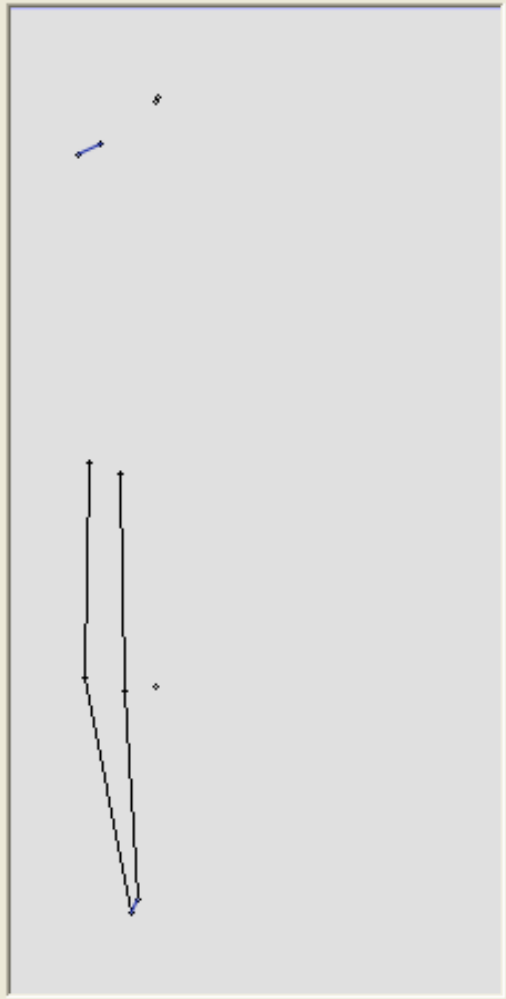

D 212
File
Processa
Matematica
Referta
Help!
Prepara
Ruota
Angoli
Distanze
Baricentri
Refresh punti
Rette (AB-CD)
187
35
19
41
@a
@b
@c
@d
Punti: pt[@a]: 95 214 76 pt[@b] 176 217 58 pt[@c]: 110 569 pt[@d]: 161 569 99
Dati di refertazione:
canc
[@] angolo (AB-CD): 3D 6,3; frontale: 2,1; sagittale: 9,5; coronale: 5,9
Baricentri
Conferma
Pt:
Canc
Salva
label1
label1


A
13°
B
XY plane
ZY plane
XZ plane
trunk rotation
3D Angle
XY plane
ZY plane
XZ plane
7,6°
1,4°
14,3°
7,5°
X deviation
Z deviation
9,0 mm
125,5 mm
scoliosis
14°
Math3D è un programma realizzato da Alessandro Manelli
C
right
left
XY plane
ZY plane
right
left
XZ plane
trunk rotation
3D Angle
XY plane
YZ plane
XZ plane
9,8°
0,3°
26,8°
2,8°
X deviation
Z deviation
3,7 mm
62,9 mm
Math3D è un programma realizzato da Alessandro Manelli

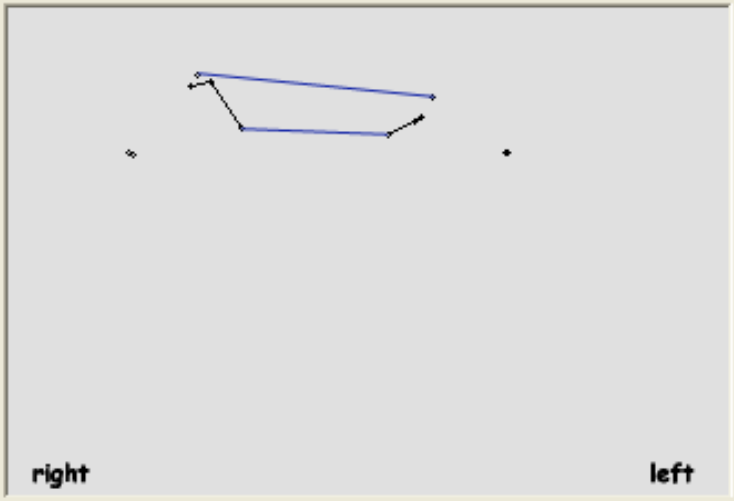

A
XY plane
ZY plane
XZ plane
right leg
3D Angle
34,5°
XY plane
-5,5°
ZY plane
34,4°
XZ plane
52,9°
left leg
3D Angle
8,4°
XY plane
6,8°
ZY plane
5,0°
XZ plane
58,0°
trunk rotation
3D Angle
6,7°
XY plane
5,4°
ZY plane
37,2°
XZ plane
4,1°
Math3D è un programma realizzato da Alessandro Manelli



XY plane



ZY plane



XZ plane

right leg

3D Angle	XY plane	ZY plane	XZ plane
12,3°	2,0°	12,2°	67,0°

left leg

3D Angle	XY plane	ZY plane	XZ plane
6,2°	5,9°	1,9°	14,1°

trunk rotation

3D Angle	XY plane	ZY plane	XZ plane
9,8°	0,3°	26,8°	9,8°

Math3D è un programma realizzato da Alessandro Manelli

Grazie!