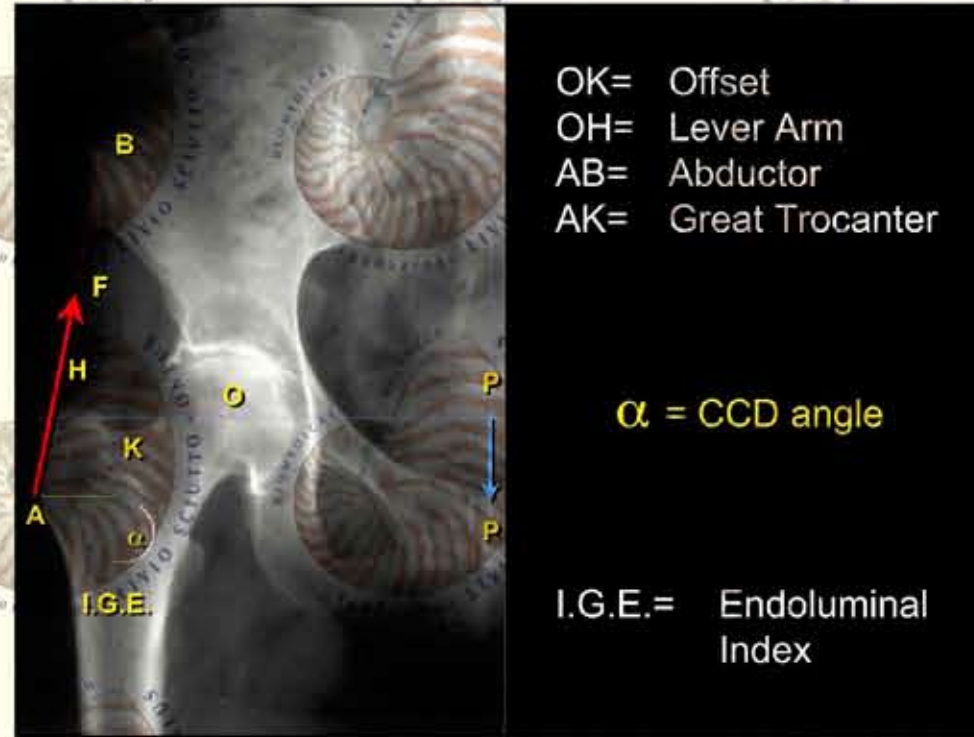
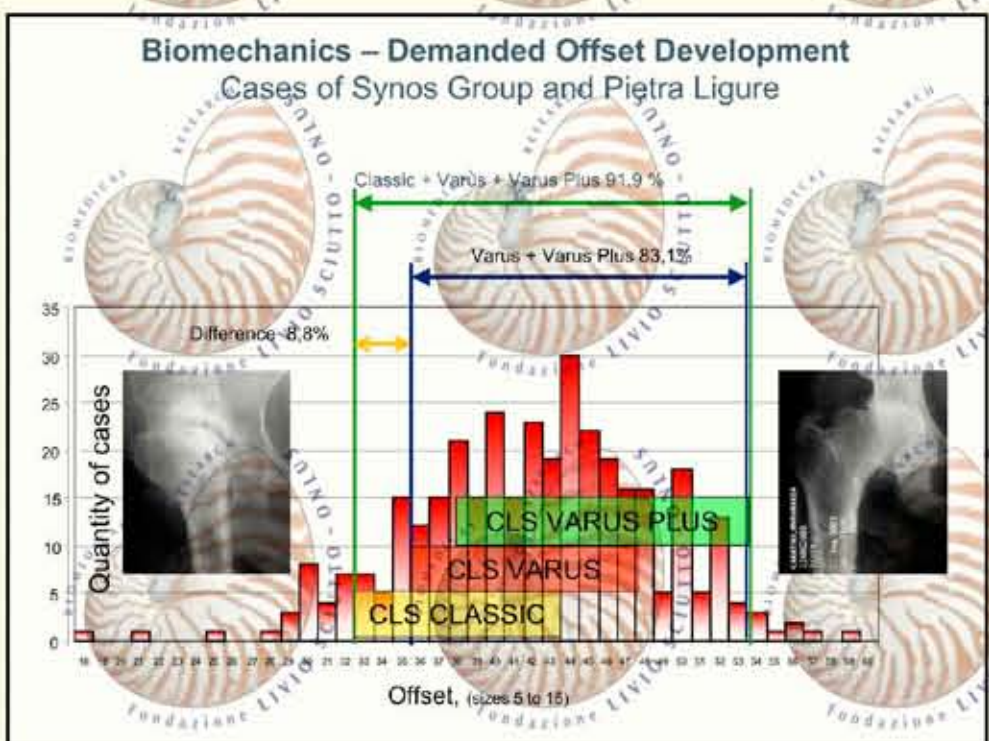
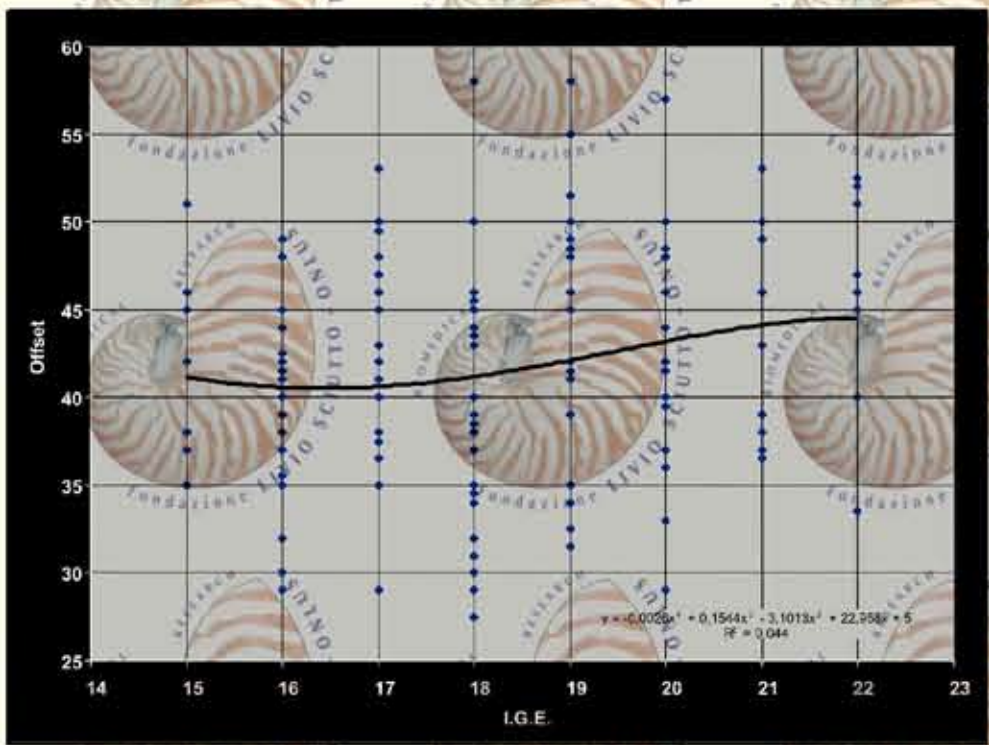
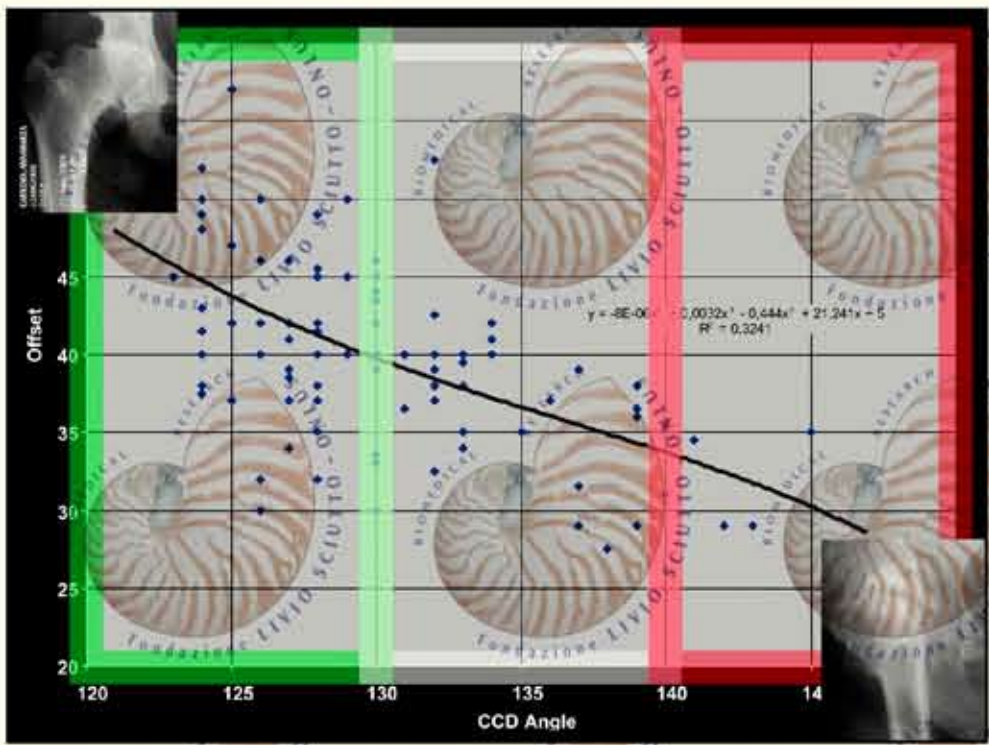
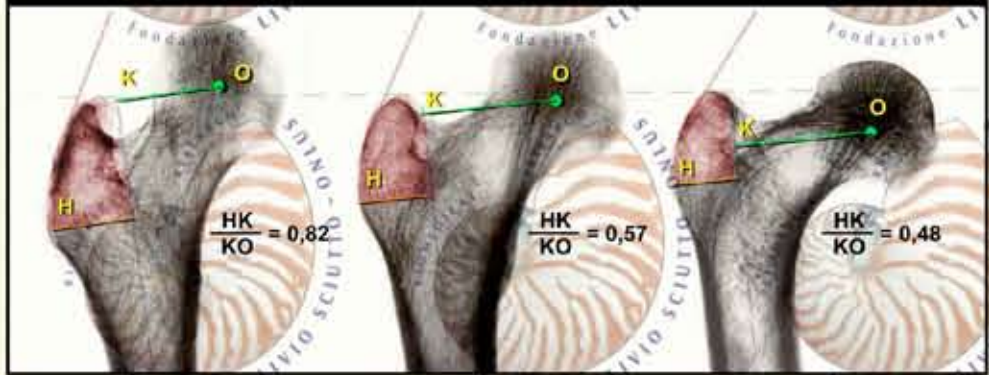
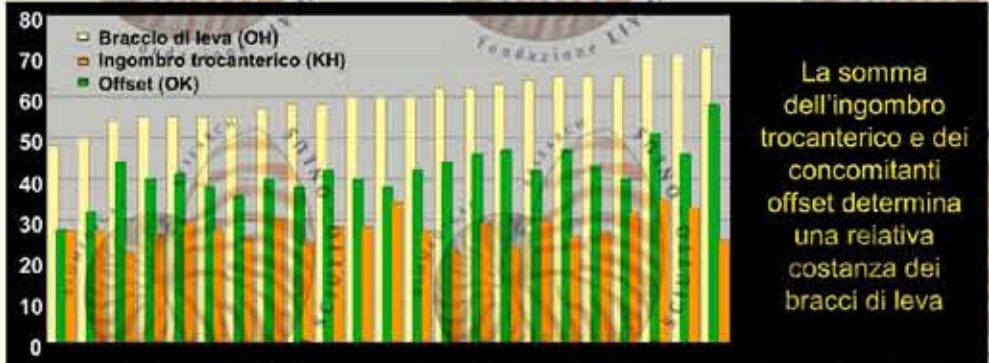


Offset and hip arthroplasty

L. Spotorno, G. Grappiolo, F. Astore, A. Camera

Dept. of Hip Surgery - S. Corona Hospital - Pietra L. (SV), Italy
 Scienza & Vita Foundation - www.scienzaevita.it
fondazione@scienzaevita.it

The aim of this study is to evaluate the role of offset for the arthroplasty of the hip



Material

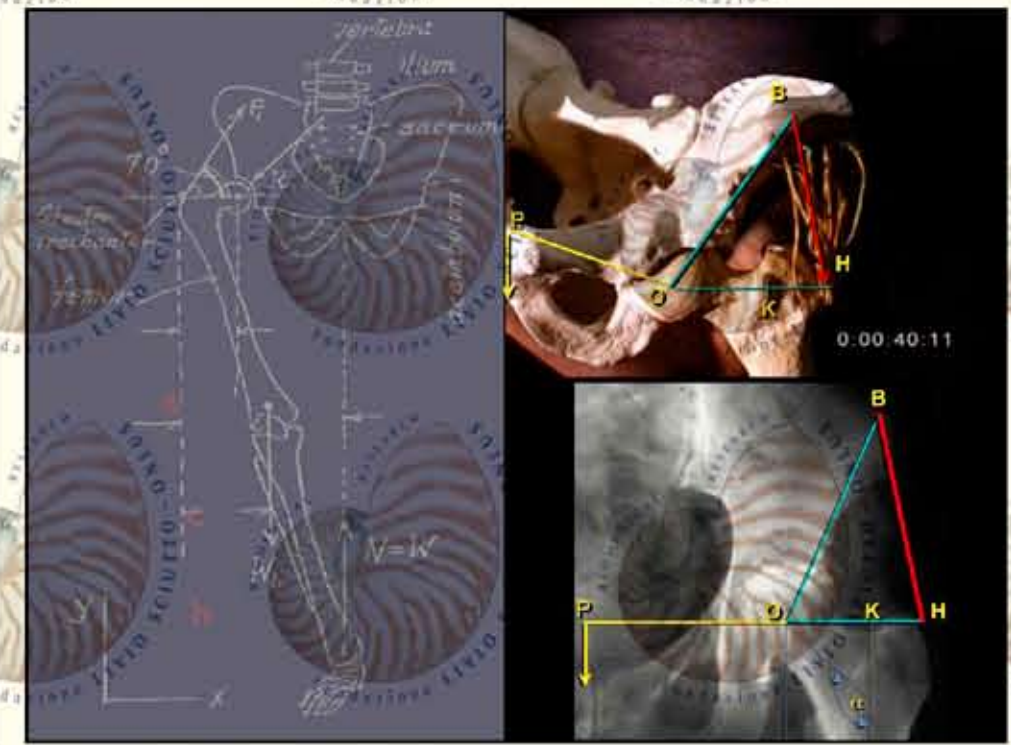
A retrospective clinical trial was performed to investigate the radiological anatomy of the hip. 353 patients undergone to primary total hip replacement were included into this study. Pre-operative standardized x-ray of the pelvis were evaluated. Parameters measured were the lever arm of the abductors, offset (perpendicular distance between the axis of the femoral shaft and the center of rotation of the femoral head), trochanteric size (perpendicular distance between the axis of the femoral shaft and the insertion of the gluteus medius on the greater trochanter), the femoral neck-shaft angle, the endoluminal index and the lever arm of the body weight. Patients with fractures and previous surgery of the hip were excluded from this study.

Results

Relative constancy of the lever arm resulting from the sum of different offset with the respective trochanteric size. Inverse proportional relationship between offset and femoral neck-shaft angle. No correlation between offset and endoluminal index. The distribution of the offset in this study population follows a bell curve where the extreme values of the two tails (excess of valgus for offset under 30 mm and excess of varus over 55 mm) can be considered as pathological.

Discussion

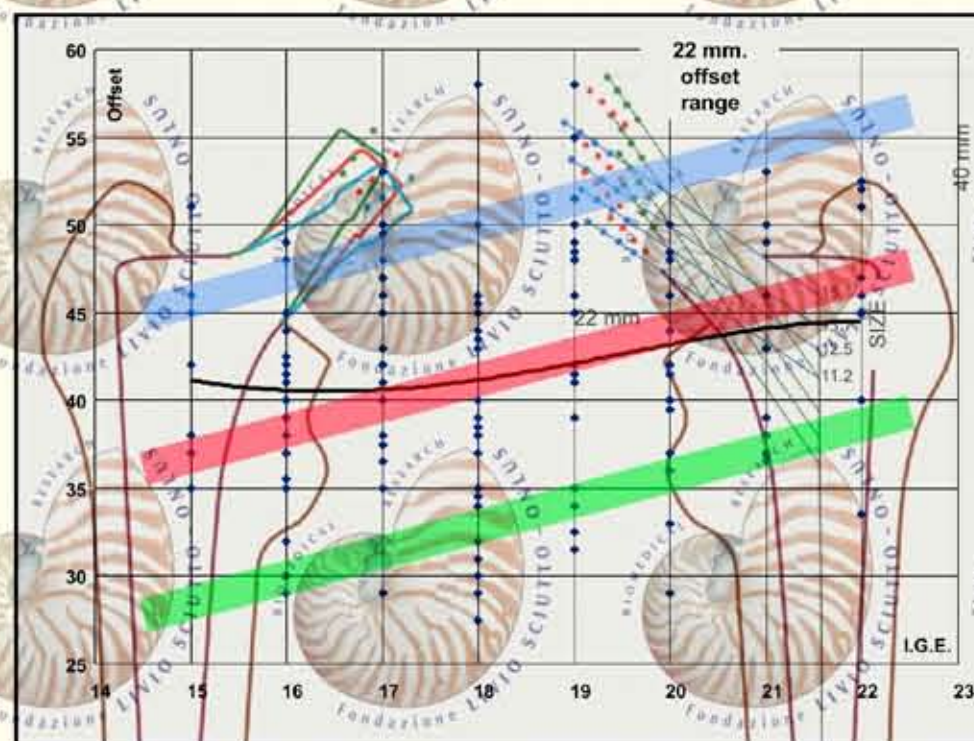
In a mechanical structure, as the hip, with a static function and movement consisting of rigid levers, non-elastic tie-rods and contractile components, every variation of the balance may be translated into unpredictable results, which is hardly ever an improvement for the general static-dynamic economy of the system. We have identified the offset values of two pathological families, one of which is characterized by excessive valgus with minimal offset, the other consisting of an excess of varus with a very large offset, not to be restored during the implantation of hip arthroplasty, but rather corrected.



The Offset Options with the CLS System

Design - Offset Options

Size	L	OS 125	OS 135	OS 145	a1	a2	b1	b2
5	135.6	37.5	35.1	32.8	2.3	2.4	3.6	2.4
6	139.2	39.8	36.3	33.9	2.4	2.5	3.8	2.6
7	142.8	40.1	37.6	35.0	2.6	2.5	3.8	2.8
8	146.4	41.5	38.8	36.1	2.7	2.7	4.0	2.9
9	150.0	42.8	40.1	37.2	2.9	2.7	4.1	3.1
10	153.6	44.1	41.2	38.2	3.0	2.9	4.2	3.1
11,25	158.1	45.5	42.6	39.4	3.2	2.9	4.3	3.5
12,5	162.6	47.0	43.9	40.6	3.3	3.1	4.4	3.5
13,75	167.1	48.4	45.3	41.8	3.4	3.1	4.5	3.7
15	171.6	49.9	46.8	43.0	3.6	3.3	4.6	3.7
16,25	176.1	51.3	47.9	44.2	3.7	3.4	4.9	3.8
17,5	180.6	52.8	49.2	45.4	3.8	3.6	5.0	3.8
20	189.6	55.7	51.9	47.8	4.1	3.8	5.2	4.1



Conclusion

In this study it has become evident that it is necessary to extend the gamut of hip prosthetics, introducing more femoral neck-shaft angles with a resulting increase in the range of offset and, in the meantime, have an optimal control in the restoration of the correct length of the limb.