



Dietrich TÖNNIS

(1927, Würzburg - 2010, Dortmund, Germany)

EPOS Founder (1982), 1st EPOS Treasurer (1982-1987)

Contribution to EPOS

Together with John Sharrard, José Mesquita Montes and Jürgen Baumann, Dietrich Tönnis was invited by Henri Bensahel to Hôpital Bretonneau, Paris in 1981. The Five planned the Founding Meeting of EPOS which was held in Paris on 13th March 1982. At the 2nd annual meeting in Paris, 19th March 1983, the 13 present EPOS members elected Dietrich Tönnis as the first Treasurer of EPOS.

As a treasurer, he had to convert all European currencies which existed before the Euros. So, he had to deal alternatively with French Franc, Pound Sterling, Deutsche Mark, Italian Lira, Dutch Guilder, Austrian Schilling, Irish Pound, Finish Markka, Spanish Peseta, Portuguese Escudo, Belgian Franc, Serbian Dinar, Swiss Franc, and more as new members joined EPOS.

In 2008, at the Warsaw EPOS meeting, he received the prestigious Pro Maximis Meritis award.

Contribution to Paediatric Orthopaedics

His father was the first University chairholder of Neurosurgery in Germany.

Dietrich Tönnis graduated from the medical school of Munich and went for one year-grant at the Ventnor Foundation in Long Branch, New Jersey (1954/1955). The Ventnor Foundation established by a medical doctor couple in 1951 granted internships to young European Doctors in an East Coast Hospital.

He was trained in Berlin, worked as a fellow in Munich, and was elected Medical Director of the Orthopaedic Clinic in Dortmund and Professor at the University of Münster in 1970.

He devoted his life to the study of DDH. He led the hip dysplasia working group of the DGOT (German Society of Orthopaedics and Traumatology). His management of hip diseases from new-born to old-aged patients gave him a great knowledge of hip anatomy, avascular head necrosis, hip dysplasia, hip dislocation, and their treatment.

Tönnis published around 90 papers, the majority dedicated to hip dysplasia.

He described a new measurement, the "Hip Value", which permits to separate normal from pathologic hips in children and adults (1).

The Hip Value is explained by the formula:

$$HV = A + B + C + 10$$

The different factors are:

$$A = 3 \frac{\text{ACM—mean value of ACM}}{\text{standard deviation of ACM}}$$

$$B = 3 \frac{\text{mean value of CE-CE}}{\text{standard deviation of CE}}$$

$$C = 3 \frac{\text{MZ—mean value of MZ}}{\text{standard deviation of MZ}}$$

the Hip Value is based on measurements of the Idelberg–Frank^{1,2} angle, the Wiberg^{3,2} angle and MZ-distance of decentralization. By statistical methods, normal and pathological joints can be separated as follows: in adult Hip Values, between 6 and 15 indicate a normal joint form; values between 16 and 21 indicate a slight deformation and values of 22 and above are indications of a severe deformation, in children in the normal range the Hip Value reaches 14; values of 15 and up are pathological.

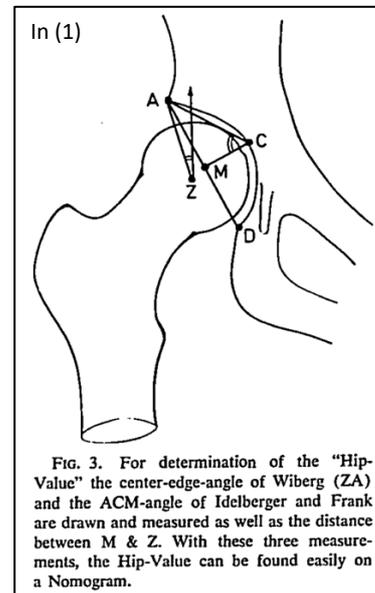


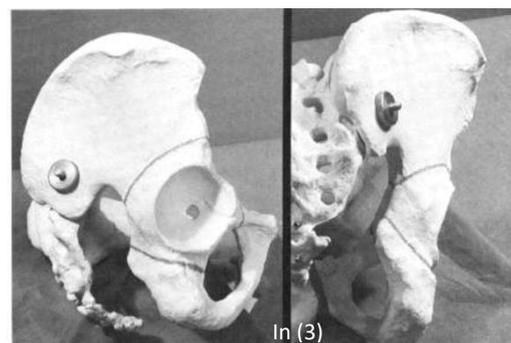
Fig. 3. For determination of the "Hip-Value" the center-edge-angle of Wiberg (ZA) and the ACM-angle of Idelberger and Frank are drawn and measured as well as the distance between M & Z. With these three measurements, the Hip-Value can be found easily on a Nomogram.

He studied the relationship between hip position in a harness or cast and subsequent avascular femoral head necrosis. He proposed a classification of AVN in 3, and then 4 grades (2).

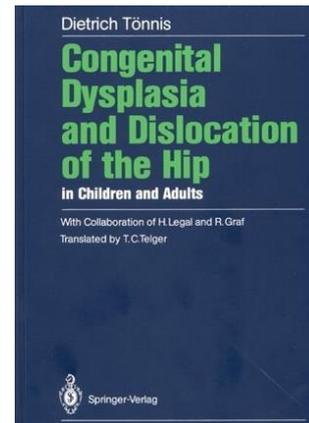
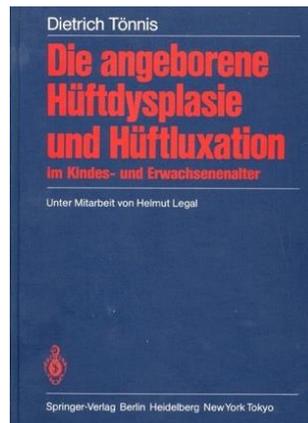
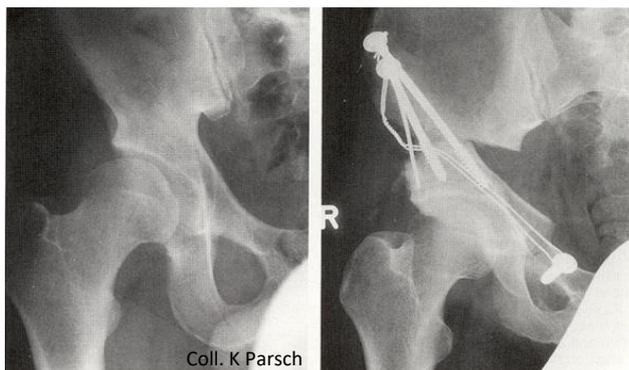
He had a life-long interest in the surgical treatment of DDH with femoral and pelvic osteotomies (2).

The Tönnis' triple pelvic osteotomy was described in the late 70s. Thus, Tönnis was able to re-orientate in a 3D position the acetabulum according to the needs of the previous dysplasia (3). Dortmund became the Germany-wide center for pelvic osteotomy with more than hundred cases a year.

Tönnis D: Eine neue Form der Hüftpfannenschwenkung durch Dreifachosteotomie zur Ermöglichung späterer Hüftprothesenversorgung. *Orthop Praxis* 15:1003–1005, 1979



After 6 years of preparation, he published in 1984 his book, a treasure, intitled: “*Die angeborene Hüftdysplasie und Hüftluxation im Kindes- und Erwachsenenalter*”. Three years later, his successful textbook was translated in English. Famous chapters concerned the anatomy and the growth of the hip, the X-ray in children and adults, and the triple pelvic osteotomy. Reinhard Graf wrote the 14th chapter: “Ultrasound examination of the hip”.



With the new ultrasound imaging, he wrote: “There is no doubt that sonography detects more pathological joints than the clinical evaluation” (4).

During the last decade, Dietrich Tönnis dedicated his life to CT scan studies on acetabular retroversion, to the relationship between the anteversion of the acetabulum and the femoral head, and to the fact that a decreased acetabular anteversion and a femoral neck anteversion cause pain and osteoarthritis (5).

Together with Klaus Parsch, Lutz Jani, and Fritz Niethard, he was co-founder of the German Society of Paediatric Orthopaedics “Vereinigung für Kinderorthopädie (VKO)” in 1987.

Passion: In his later years, Dietrich travelled repeatedly to India and spent months in an Ashram community. He felt empowered by life in a yoga world.

Top 5 references (English)

1. Tönnis D. Normal values of the hip joint for the evaluation of X-rays in children and adults. Clin Orthop Relat Res. 1976; 119: 39-47.
2. Tönnis D. An evaluation of conservative and operative methods in the treatment of congenital hip dislocation. Clin Orthop Relat Res. 1976; 119: 76-88.
3. Tönnis D, Behrens K, Tscharani F. A modified technique of the triple pelvic osteotomy: early results. J Pediatr Orthop. 1981; 1: 241-9.
4. Tönnis D, Storch K, Ulbrich H. Results of newborn screening for CDH with and without sonography and correlation of risk factors. J Pediatr Orthop. 1990; 10: 145-52.
5. Tönnis D, Heinecke A. Acetabular and femoral anteversion: relationship with osteoarthritis of the hip. J Bone Joint Surg Am. 1999; 81: 1747-70.



*Dietrich and Margret Tönnis
Stuttgart, 1999
(Coll. K Parsch)*