In 1987, Goldstein, Krane and Patnatham published in the Journal of Biomechanical Engineering that "Methodology to record the quality of penial erection has included determination of penial blood pressure, blood flow, temperature, circumference and rigidity. The later characteristic, PENIAL RIGIDITY, has proven to be most elusive, yet most informative parameter of erectile quality. Penile rigidity is the mechanical stiffness that the penis exhibits to external load, and is manifested both circumferentially and axially".

What is the penis rigidity?

The rigidity of the penis is the pressure capacity in its longitudinal axle, measured in grams. In 1988, Karakan and Moore demonstrated that the necessary rigidity for intercourse is of about 500 grs.

Searching in this direction we have worked 3 years with a prototype of the Digital Inflection Rigidometer and have proved it can measure all the afore parameters. We have been using it in 150 cases and have compared the results with the other devices, the DIR is faster, easier and more accurate.

The objective of our work is to have a device capable of measuring:

- The penis axial rigidity
- The relative intracavernous
- The glans temperature

All these measurements are done in a precise, fast and harmless way. The equipment is used at the clinic, but it can also be used at home by the patient himself, avoiding thus the psychological pressure of the clinic. During the past years, in medical literature we find unprecise expression about rigidity. Unstable, stable erection, good or bad erection, insufficient erection, etc...

In the first part of the poster you can see a chronological series of computer displays. The most important is the sensor of the DIR which can take 50 measurements per second during five seconds. It registers the maximum pressure exerted by the glans on the sensor and the exact point at which inflection occurs. This point corresponds with the penis axial rigidity. When the patient data is entered in the computer, it is very important to include the patients maximum arterial pressure because the DIR can determine the relative arterial intracavernous pressure, through a complex algebraic equation. The sensor of the DIR has a very sensitive thermometer which can measure the glands temperature in 15 seconds. All these measurements are presented in a graphical display which also includes the
date, hour, minutes, seconds and the number sessions that have been used.

In conclusion, the DIR infills a gap which existed in the methodology of erectile dysfunction diagnosis. It is also important to mention that in future the DIR can provide us with an universal measurements of the penis axial rigidity in grams which will allow us to evaluate the type of erectile dysfunction as well as the results of the test for diagnosis and treatments.

We use the DIR with our patients affected by erectile dysfunction and this data has been compared with that obtained through the use of mechanical rigidometer, and the Rigiscan in real time, with with video-sex-stimulation or/and vaso-active substances. The results have been more precise and accurate and of universal parameters. We learn of the active participation of the patient. Using the right or left hand, the DIR must be pressed against the gland until the penis bends. The rigidity must exceed 400 grammes for it to be useful. The DIR shows the APR and temperature and allows us to value the APR in a harmless and faster way.