THE IMPORTANCE OF SPERM MORPHOLOGY IN THE EVALUATION OF MALE INFERTILITY

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• Estimation of man's fertility potential.
• Semen analysis - a keystone in clinical workup.
• The importance of sperm morphology.
• The standardization of normal spermatozoon.
• The WHO criteria (1987, 1992).
• The strict criteria.
• Computer-assisted methods.
The WHO criteria (1987):

- Normal frequency: 50 %.
- Head shape: regular oval shaped.
- Head size: 3-5 um long, 2-3 um wide.
- Length/width ratio: 1.5-2.0.
- Acrosome: > 1/3.
- Vacuoles: no details.
- Cytoplasmic droplets: no details.
- Midpiece: 7-8 um, <1/3 width of head, slender, straight and regular, aligned with longitudinal axis of head.
- Tail: at least 45 um, slender, uncoiled and regular.
The WHO criteria (1992):

- Normal frequency: 30%.
- Head shape: oval; borderline forms abnormal.
- Head size: 4.0-5.5 μm long and 2.5-3.5 μm wide.
- Length/width ratio: 1.5-1.75.
- Acrosome: 40-70% of head area, well defined.
- Vacuoles: <20% of head area.
- Cytoplasmic droplets: <1/3 normal head.
- Midpiece: no dimensions, no description of normal (defects only given).
- Tail: no dimensions, no description of normal (def. only).
The strict criteria:

- Normal frequency: 14%.
- Head shape: oval configuration with a smooth contour, borderlines forms abnormal.
- Head size: 5-6 um long and 2,5-3,5 um wide.
- Width/ length ratio : 1/2-3/5.
- Acrosome: 40-70 % of the distal part of the head, well defined.
- Cytoplasmic droplets: < 1/2 normal head.
- Midpiece: 1,5 of the head length, <1 um wide, slender and axially attached.
- Tail: 45 um long, uniform, uncoiled, slightly thinner than the midpiece.
Computer assisted methods:

• The method of Moruzzi (1988).
  - sperm image optically sectioned and measured by computer (semi-automated).
  - 95% accuracy and 86% correct assignment to one of 10 classes.

• The Perez- Sanchez system (1994).
  - head image processed automatically; midpiece and tail excepted.
  - characterization of the majority of morphological types.
  - more standardization needed (technical problems).
CONCLUSIONS:

• The strict sperm morphology clinical relevance, *in vivo* and *in vitro*, independent of other parameters.

• The definition of morphological "normality" is still a matter of debate.

• The advantage of strict criteria.

• The improvement of existing classification, in order to eliminate subjectivity.
CONCLUSIONS:

• Basic semen assessment training courses for a high standard achievement.
• Research projects: from objective base observations to scientific bases in evaluation of semen fertility (sperm head morphology).
• Infertility patients must be evaluated as a couple.