NEW SEMEN SCORES ARE EFFECTIVE MEASURES OF SEMEN QUALITY
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Objective:
Semen analysis typically measures a wide variety of sperm characteristics. Many of these characteristics are correlated, indicating that underlying measures of semen quality can be used to reduce the number of variables evaluated. The purpose of this study was to determine if nine characteristics of sperm specimen may be reduced to one or two measures of semen quality in men evaluated for their infertility.

Design:
A prospective study at a male infertility clinic.

Materials/Methods:
Two hundred fifty infertile men and 19 normal, healthy donors were evaluated for nine semen characteristics (concentration, motility, curvilinear velocity, straight-line velocity, average path velocity, linearity, amplitude of lateral head movement and sperm morphology by WHO and Kruger's strict criteria. Principal component analysis was applied to these parameters after log transformation to reduce the effects of varying scales and distributions.

Results:
Principal component analysis indicated that two semen scores accounted for 80.3% of all variability among original semen characteristics. The first principal component, Semen Quality, or "SQ" was a weighted sum of all 9 semen characteristics and accounted for 64.7% of the overall variability. The second component, Relative Quantity or "RQ" was a weighted sum of eight characteristics subtracted from concentration. This was considered a measure of relative quantity e.g. whether concentration was above or below the levels expected based on the other characteristics. The distribution of both SQ and RQ among the healthy controls was standardized as 100 ± 10. Among the sample of patients, the average SQ and RQ scores were 89.9 (min 25.1, max 130.4) and 93.9 (min 34.1, max 154.8), respectively.

Conclusions:
We believe that reducing the 9 semen characteristics into 2 scores is more efficient - allowing quick assessment of semen quality. Patients with values of SQ and RQ below 80 are outside the 95% confidence intervals of normal controls. Semen scores may provide an easy method of identifying patients with abnormal semen quality.

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