The spermatozoal creatine kinase (CK) level indicates sperm maturity and correlates with spermatozoa fertilizing potential. Excessive cytoplasmic CK near the mid-piece region is linked to sperm immaturity. Our study assessed the association between specific sperm morphological abnormalities and the sperm CK activity in subfertile men. Semen specimens were collected from 66 men who were subfertile according to the World Health Organization (WHO) criteria. Characteristics of liquefied semen were analyzed using a computer-assisted semen analyzer. Seminal smears were stained with a Giemsa stain (Diff-Quick) and morphological features were scored according to the WHO method. Creatine kinase activity was determined with a CK kit (Sigma Diagnostics) by suspending a semen aliquot in imidazole buffer at pH 7.0 and measuring the change in absorbance of NADH at 340 nm. Results were expressed as units/10^8 sperm and the relationship between CK activity and sperm morphological abnormalities was analyzed. The average CK activity was 0.46 ± 0.08 units/10^8 sperm in the 66 samples. The CK level was significantly lower when the percentage of normal sperm forms was high (P <0.001). A high CK level significantly correlated with an increase in mid-piece swelling (P <0.0009). This strong correlation between sperm mid-piece swelling and CK suggests that these abnormalities may be related to defects in cytoplasmic extrusion or in mitochondrial function, which may impair spermatogenesis.