Effect of temperature on quality-related changes in cod (Gadus morhua) during short- and long-term frozen storage.

Cod (Gadus morhua) was stored at eight temperatures (-10 to -80 degrees C) for 1 to 18 months, after which quality indicators were measured including drip loss, water holding capacity, low field NMR spin-spin relaxation, color, amount of thiobarbituric acid reactive substances, and sarcoplasmic reticulum Ca2+-ATPase and lysosomal Cathepsin D activities. Results from samples stored up to 12 months showed no significant differences between -30 degrees C and lower temperatures. The NMR measurements, however, indicated some changes in the water distribution of samples stored at -30 degrees C for 12 or more months compared to storage at -40 degrees C or lower.