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Titel des Beitrags: Effects of repetitive platelet-rich plasma application on human tenocyte proliferation.

Abstract: Current clinical application of platelet-rich plasma is showing a trend toward multiple treatments. The goal of this study was to show the benefit of interval platelet-rich plasma application in the healing and recovery of human tenocytes using an in vitro cell model. Eight volunteers (6 men and 2 women) were included in this study (mean±SD age, 31.6±10.9 years). Venous blood was collected from new blood draws at 3 different times. Two blood products were prepared on each day of treatment: platelet-rich plasma derived from a single-spin process (PRPSS) and platelet-rich plasma derived from a double-spin process (PRPDS). The study had 2 limbs: 2-day and 4-day intervals. Cell proliferation, measured as disintegrations per minute, was then examined via a radioactive thymidine assay. In the 2-day-interval group, the difference in disintegrations per minute between days 0 and 2 in the PRPSS group reached statistical significance (P =.006). In the PRPDS group, statistical difference was seen between days 0 and 4 (P=.001) and between days 2 and 4 (P=.030). In the 4-day-interval group, the difference in disintegrations per minute between days 4 and 8 in the PRPSS group reached statistical significance, showing a decrease in cell proliferation (P =.013). In the PRPDS group, a statistical difference was seen between days 0 and 8 (P=.021),
also showing a decrease in cell proliferation. The greatest effect of platelet-rich plasma, which has a positive effect on tenocyte proliferation and recovery, is seen on initial application. Its effect is diminished with repetitive application, and this finding leads to questioning of the efficacy of interval platelet-rich plasma dosing.