

# **Does Water-jet Force Make a Difference in Fat Grafting: in Vitro and in Vivo Evidence of Improved Lipoaspirates Viability and Fat Grafts Survival.**

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## **Abstract**

**Background:** Recent literatures reveal that water-jet assisted liposuction offers a new method to conventional liposuction techniques by using the gentle spray of fluid. However, there has not yet been a systematic, randomized, controlled study to demonstrate its effect on fresh lipoaspirates' vitality and postoperative fat survival. In this study, we compared the liposuction procedure with or without water-jet assistance respectively in a blinded way.

**Methods:** Human lipoaspirates were obtained from healthy Chinese female volunteers for body shaping. Lipoaspirates were harvested by a single surgeon using same material and machine, water-jet assistance was the only variance in this study. At the beginning of surgery, we randomly did conventional manual liposuction without water-jet assistance for one side to get 50ml lipoaspirates (group B). At the corresponding area of the other side, we adopted the water-jet assisted liposuction to obtain another 50ml lipoaspirates (group A). All the harvested lipoaspirates were used in the in vitro and in vivo experiments to evaluate the effect of water-jet force on fresh lipoaspirates' vitality and postoperative fat survival.

**Results:** Fresh lipoaspirates from group A have greater viability and higher percentage of CD34+/CD45- cells than group B. Grafted lipoaspirates in group A have better weight retention, less apoptosis and greater angiogenesis.

**Conclusions:** The fate of grafted lipoaspirates was affected by water-jet force. With the assistance of water-jet force during harvesting procedure, we could obtain more viable lipoaspirates, and gain better fat survival result.

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