

Literature:

Clinical studies listed below demonstrate that the concentration of glucose decreases in a flap during ischemia while the concentrations of lactate and glycerol rise. These metabolic changes indicate ischemia at an early stage, often hours before clinical signs become evident. When the perfusion in the flap is restituted e.g. by surgical intervention the Microdialysis values return to normal levels.

Microdialysis in clinical practice: monitoring intraoral free flaps.

Ann Plast Surg. 2006 Apr;56(4):387-93. Jyränki J. et al
Department of Plastic Surgery, Helsinki University Hospital, Helsinki, Finland.

Tracheostomy tape: more trouble than it's worth?

Int J Oral Maxillofac Surg. 2007 Jun;36(6):550-1.
Case report Burke GA et al, Maxillofacial Unit, University Hospital Birmingham, Birmingham, UK

Microdialysis: use in the assessment of a buried bone-only fibular free flap.

Plast Reconstr Surg. 2007 Oct;120(5):1363-6.
Case report Mourouzis C et al, Department of Oral and Maxillofacial Surgery, Queen Alexandra Hospital, Portsmouth, UK

Cost Analysis of 109 Microsurgical Reconstructions and Flap Monitoring with Microdialysis

J Reconstr Microsurg. 2009 Nov;25(9):521-6.
Setälä L et al, Department of Plastic Surgery, Kuopio University Hospital, Finland.

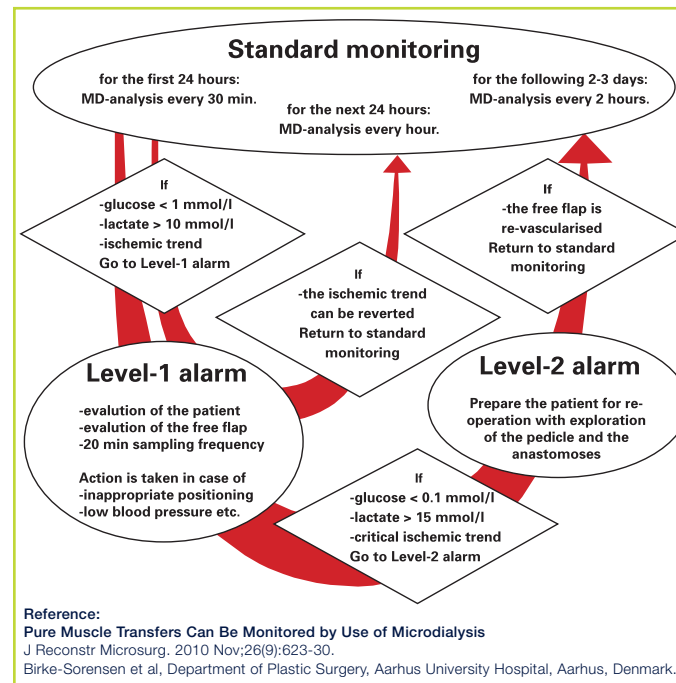
Pure Muscle Transfers Can Be Monitored by Use of Microdialysis J Reconstr Microsurg. 2010 Nov;26(9):623-30.

Birke-Sorensen et al, Department of Plastic Surgery, Aarhus University Hospital, Aarhus, Denmark.

Glucose and lactate metabolism in well-perfused and compromised microvascular flaps.

J Reconstr Microsurg. 2013 Oct;29(8):505-10. doi: 10.1055/s-0033-1348039. Setälä et al. Department of Plastic Surgery, Kuopio University Hospital, Finland.

Flow chart



M Dialysis AB

M Dialysis is the leading company devoted to the development, manufacturing and marketing of the Microdialysis technique.

The head office is located in Stockholm, Sweden, with a subsidiary in Boston MA, USA. M Dialysis has distributors across the globe, responsible for local sales, service and support.



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Microdialysis

Reconstructive Surgery

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Distributor

Microdialysis in Plastic Surgery

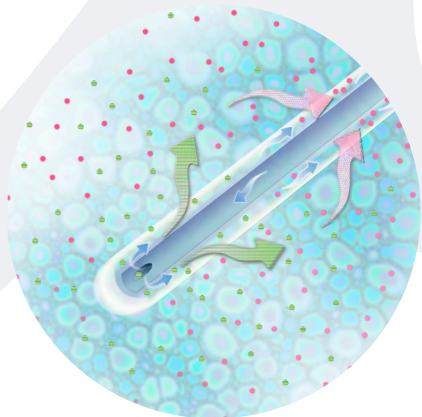
Microdialysis is a tool for *in vivo* sampling of soft tissues that utilizes the principal of diffusion through a semi-permeable membrane. The technology is minimally-invasive, easy to handle, and can be used for several days.

The method is performed by inserting a Microdialysis catheter into the tissue being studied. The Microdialysis membrane of the catheter is in direct contact with the soft tissue.

The catheter is perfused with a sterile isotonic solution via a small pump attached to its inlet lumen. In the tissue, substances from the interstitial fluid diffuse through the semi-permeable Microdialysis membrane into the perfusion fluid. This fluid, now known as dialysate, moves through the outlet lumen and into a collection microvial. The Microvials are exchanged at regular intervals and analyzed immediately using the ISCUS^{flex} Microdialysis Analyzer.

The metabolite values in the collected sample provide a picture of the local tissue metabolism and Microdialysis is a safe and reliable monitoring for surveillance of surgical flaps.

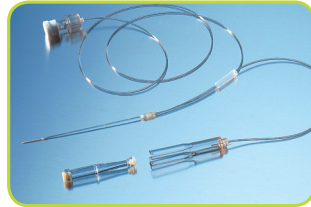
Despite recent advancements in micro vascular surgery clinical observation of free flaps is still difficult and time consuming. An early detection of ischemia is crucial for the salvage of the flap. Microdialysis allows continuous monitoring of flap perfusion in a clinical setting without discomfort for the patient.



Microdialysis sampling

Microdialysis sampling is carried out by placing the sterile CE-certified Microdialysis catheter in resting skeletal muscle or fat tissue:

63 Microdialysis Catheter



- For subcutaneous and resting skeletal muscle tissue
- Ideal for small and intraoral transplants
- Sterile, single use
- Introducer included

106 Microdialysis Pump



The 106 Microdialysis Pump is dedicated for the perfusion of Microdialysis catheters with sterile isotonic perfusion fluid. It is handy and battery driven. The operating status is indicated by LED's and it operates at a fixed flow rate of 0,3 µl/min.

The Microdialysis monitoring system is light and portable and is not disturbing nursing actions or movement of the patient.

ISCUS^{flex} Microdialysis Analyzer

The ISCUS^{flex} Microdialysis Analyzer is specially designed for the handling of small Microdialysis sample volumes.

The system is a point of care analyzer for monitoring metabolic changes in tissues and organs during surgery, in intensive care and normal ward.

Biochemical markers:

Glucose

Glutamate

Lactate

Glycerol

Pyruvate

Urea



The ISCUS^{flex} Microdialysis Analyzer