Iontophoresis is a process of transdermal drug delivery by use of a voltage gradient on the skin. Molecules are transported across the stratum corneum by electrophoresis and electro-osmosis and the electric field can also increase the permeability of the skin. This can help make many molecules permeable to the skin which previously were only available through injections. The products below are some of the most successful to be used in when delivered as transdermal patches.

NAD+

NAD+ is the second most popular cofactor in the human body. Anti-aging therapies becoming more mainstream as aging is now more often being viewed as a disease. Now that this transition is happening, the ability for NAD+ to activate PARPS, Sirtuins, and help with immune dysregulation has been thoroughly investigated and NAD+ and its precursors have been highly popularized.

The clinical importance of maintaining cellular NAD+ levels was established early in the last century with the finding that pellagra, a disease characterized by diarrhea, dermatitis, dementia and death, could be cured with foods containing the NAD+ precursor niacin. Additionally, cellular concentrations of NAD+ have been shown to decrease under conditions of increased oxidative damage such as occur during aging

Altered levels of NAD+ have been found to accompany several disorders associated with increased oxidative/free radical damage including diabetes, heart disease, age-related vascular dysfunction, ischemic brain injury, misfolded neuronal proteins, and Alzheimer's dementia .

Interventions targeted at restoring NAD+ have been shown in animal models to support healthy aging and improve metabolic function, and dementia as well.

Dexamethasone

The most popular and well researched iontophoresis application is the use of dexamethasone, a corticosteroid in a sodium phosphate solution. In this form, the drug is composed of negatively charged ions of dexamethasone phosphate and, when loaded into a negatively charged reservoir or electrode pad, the electrical force of the like charges pushes the medication molecules into the desired area. This causes pain relief for many hours via direct application.

KPV

KPV is a fragment of Alpha-MSH which has shown some incredible anti-inflammatory capabilities. This is able to be driven across the skin to help with healing, inflammatory conditions, and psoriasis.

The following table shows some other popular uses of iontophoresis. If you have any questions about these applications please give us a call!

Medication	Principal Indication(s)	Treatment Rationale	Iontophoresis
Acetic acid	Calcific tendinitis	Acetate is believed to increase solubility of calcium deposits in tendons and other soft tissues	2%–5% aqueous solution from negative pole
Calcium chloride	Skeletal muscle spasms	Calcium stabilizes excitable membranes; appears to decrease excitability threshold in peripheral nerves and skeletal muscle	2% aqueous solution from positive pole
Dexamethasone	Inflammation	Synthetic steroidal anti-inflammatory agent	4 mg/mL in aqueous solution from negative pole
Hydrocortisone	Inflammation	Anti-inflammatory steroid	0.5% ointment from positive pole
Hyaluronidase	Local edema (subacute and chronic stage)	Appears to increase permeability in connective tissue by hydrolyzing hyaluronic acid, thus decreasing encapsulation and allowing disbursement of local edema	Reconstitute with 0.9% sodium chloride to provide a 150 mcg/ml solution from positive pole
Iodine	Adhesive capsulitis and other soft-tissue adhesions; microbial infections	Iodine is a broad-spectrum antibiotic, hence its use in infections, etc.; the sclerolytic actions of iodine are not fully understood	5%–10% solution or ointment from negative pole
Lidocaine	Soft-tissue pain and inflammation (e.g., bursitis, tenosynovitis)	Local anesthetic effects	4%–5% solution or ointment from positive pole
Magnesium sulfate	Skeletal muscle spasms; myositis	Muscle relaxant effect may be caused by decreased excitability of the skeletal muscle membrane and decreased transmission at the neuromuscular junction	2% aqueous solution or ointment from positive pole
Salicylates	Muscle and joint pain in acute and chronic conditions (e.g., overuse injuries, rheumatoid arthritis)	Aspirin Like drugs with analgesic and anti-inflammatory effects	10% trolamine salicylate ointment or 2%–3% sodium salicylate solution from negative pole
Tolazoline hydrochloride	Indolent cutaneous ulcers	Increases local blood flow and tissue healing by inhibiting vascular smooth muscle contraction	2% aqueous solution or ointment from positive pole
Zinc oxide	Skin ulcers; other dermatologic disorders	Zinc acts as a general antiseptic; may increase tissue healing	20% ointment from positive pole

TAILOR MADE COMPOUNDING

ActivaPatch®
IontoGo™ 4.0

INSTRUCTIONS FOR TREATMENT

1. Open pouch and remove contents: (1) ActivaPatch® IontoGo™ 4.0; (1) alcohol wipe

2. Inspect area where ActivaPatch® IontoGo™ 4.0 is to be placed and ensure skins intact. Clean treatment site with alcohol and wipe thoroughly.

3. Ensure that treatment site is dry before applying ActivaPatch® IontoGo™ 4.0.

4. With a marked syringe, draw 2.0 cc of ionic solution and hydrate the active ionic solution reservoir (see diagram A).

5. Do not under- or overfill the reservoir.

6. Note: Make sure that there are no visible dry spots. If dry spots are visible, touch up lightly with tip of syringe until they are gone (do not overfill).

7. Gently apply your thumb to the battery case and remove the pull tab to activate the patch (see diagram B).

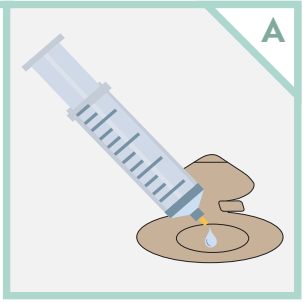
8. Peel liner and place patch directly on treatment area (see diagram C). Do not compress the electrode on reservoir area, or solution may leak.

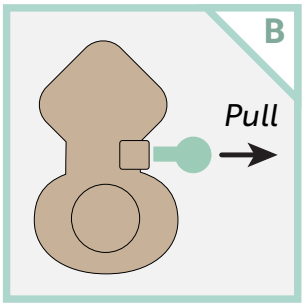
9. Once treatment has begun, pull off remaining release liner over pull tab (see diagram D).

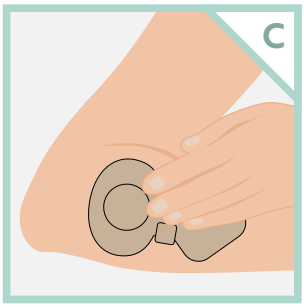
10. After 4 hours, remove patch.

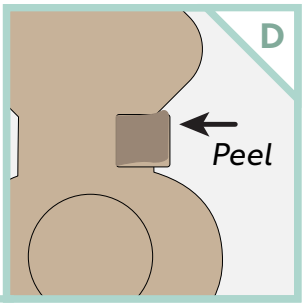
11. Properly dispose of electrode after use.

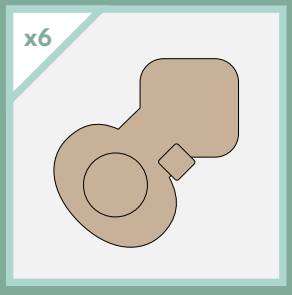
Average treatment time for 80mAmp* dosage is 4 hours.

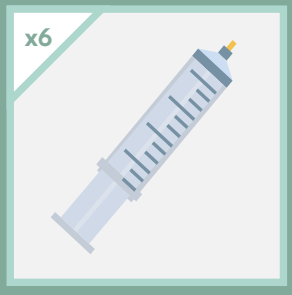












EACH BOX CONTAINS:

- (6) ActivaPatch® IontoGo™ 4.0 patches
- (6) Alcohol Wipes
- (6) Syringes