

The problem with transportation

The farther the water gets transported, the more "stuff" it will pick up - and the more growth it will host for organisms of all kinds, except when it simply seeps into the ground to form groundwater. Groundwater will, however, often get almost saturated with minerals from the geological layers it is contained in. The most common ones are limestone, chalk, and other cretaceous layers (generated some 70-130 million years ago) that all supply Calcium and Magnesium plus a bunch of other minerals that occur naturally in those layers, varying from one location to another. That's how you get "hard" water". "Hard" water is nothing more or less than water containing Calcium and Magnesium as dissolved ions.

Calcium and Magnesium and the other minerals that typically follow them are generally good for us and for our dogs. However, the amounts that typically dissolve in water are only a small fraction of the needs both we and our dogs have for these minerals, except in very rare situations where the solubility of Calcium has been enhanced by the presence of Carbon dioxide. And those mineral contributions are not consistent. Furthermore, you probably don't even know what they are, so you cannot use this supplement to reduce your intake of those nutrients from other sources anyway.

Calcium ions are positively electrically charged, and they will very seriously change the "normal" properties of the water. However, the difficulties you experience with skin contact from "hard" water is not due to the Calcium, but to the most commonly negatively charged ions following the Calcium from the rocks, primarily Carbonate - which is a fairly strong base that will raise pH quite a lot, depending on the concentration. Skin does not do well with high pH...

Calcium ions will react with soap and detergents, making up what is called a "chelate compound" that will no longer have a concentrated electrical charge. Most soaps and detergents contain large negatively charged ions that will fit around a Calcium ion like a hand around a golf ball, the negative charge now being balanced by the positive charge of the Calcium ion.

This has two effects:

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- 1) it uses up the detergent (which is expensive if you try to clean something), and
- 2) it makes the Calcium more or less unavailable for the body.

Now, since Calcium did no harm, this is no advantage. And because the Carbonate is untouched by this, it can actually give a false trust in the water being "better".... So, if the "softening" process is based on the use of chelating compounds to bind the Calcium (and thus make the water test "soft"), it is actually, overall, lowering the water quality, not improving it. However, if the "softening" process is based on removing both the Calcium AND the Carbonate (as Reverse Osmosis or distillation or Ion Exchange all will do), you increase the water quality, since the total Calcium removed was insignificant as a nutrient supply source anyway - our dogs get enough through the bones we feed. If not, you need to feed more bones.... (Even extremely hard water contains no more than about 1 gram of Calcium per liter - 0.1%, that's it!)

A little note about chelating compounds to prevent too strong fear reactions in areas where it is used: the cheapest and most common one is EDTA (Ethylene-Diamine-Tetra-Acetic acid) or its Sodium salts. Despite its horribly sounding chemical name, it is very harmless to the body. Actually, it has some extremely positive effects that are used medically. It is known that removing Calcium and Magnesium from the fat tissue that constitutes the clogging, for instance, can dramatically reduce the clogging of arteries. Yes, you guessed it: EDTA is very useful for that! A complete medical treatment procedure has been developed where people simply get their arteries flushed with EDTA in a dialysis-like treatment, and the results are very promising.

But please do not conclude from this that a *long-term* exposure to EDTA will have exclusively positive effects... The necessary research has simply not been done - but we will have the results in a decade or two when someone will collect the data for people who live in cities where the water is treated with EDTA...

My conclusion here would be: Don't drink EDTA-treated water constantly - but also don't make an issue out of drinking it occasionally.

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