

Eczema: a softer approach

can water softeners
bring relief?

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Product Trial Summary

Introduction

There have been numerous reports of the possible benefit of water softeners to childhood eczema, and research continues around the country among adults and children. This summary reviews the historical evidence, explains

how water softeners work, and the range of cost savings, environmental and aesthetic benefits that a water softener provides.

Atopic eczema and its causes

Commenting on Atopic eczema, Julie Van Onselen, Independent Dermatology Nurse said:

'Atopic eczema is a common, chronic and often debilitating skin condition which results in dry skin, itchiness, inflammation, and weeping. Damage by scratching often leads to open sores which bleed and skin infections. It affects 20% of children aged up to 11 years old and 8% of teenagers and adults¹. It can be very distressing to the child, teenager, and adult with eczema and for their families. Eczema can affect people's quality of life due to many factors including sleep loss, poor concentration and psychological distress.'

Atopic eczema is a genetic condition, which can be triggered by environmental factors, which are other common irritants (for example soaps, detergents and heat). Sometimes, eczema may also be triggered by stress and some allergens, including food allergy, (which can affect a very small number of children, generally under 2 years). Eczema is a long term condition with no cure, however many children often get better as they get older. Atopic eczema for the majority is managed by use

of emollients and topical treatments (topical steroids and topical calcineurin inhibitors) to ease the symptoms and control flare-ups. Some people with eczema may require antibiotics to treat infection. People with severe eczema are usually referred to hospital for phototherapy or systemic drugs, which need careful monitoring and specialist care.

It has been suggested that hard water can cause, or exacerbate, eczema due to use of excessive amounts of soap for washing, or due to skin contact with the soap scum, which results from a reaction of the soap with the hardness minerals.

Also, reactions could occur due to scum particles on the surface of laundry (clothes and bedding) causing irritation when it comes into contact with the skin.

“

He gets upset and cries and says he hates himself on bad days. He asks why him – what can you answer? He gets annoyed if he can't join in. He gets nasty and frustrated when he is tired from lack of sleep². Parent of Kinetico product trial participant.

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**83% claim
a water softener
helped to reduce
the severity of
their eczema!**

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Supporting Evidence

Studies have indicated that the incidence of eczema can be related to water hardness, with one study in Nottingham indicating that primary school children living in hard water areas are almost 50% more likely to have eczema⁴ than those living in a softer water area. Similar mapping studies (identifying incidence of the disease in different geographical areas) carried out in Spain and Japan have found higher incidence of eczema in areas of the country which are supplied with hard water than in naturally soft water areas^{5,6}.

Hard water is identified as an environmental trigger in the NICE (2007) guidelines on atopic eczema in children 12 years and under⁷. Hard water areas are common with more than 60% of households in England and Wales affected⁸.

There are also many anecdotal records by doctors and eczema sufferers, of eczema conditions improving, or completely disappearing, when the patient moves into a soft water area or when water softeners are fitted to homes in hard water areas.

This prompted a government funded clinical trial (SWET Trial⁹) organised by the University of Nottingham Centre of Evidence based Dermatology, to compare the possible improvement in eczema in children when a water softener was fitted into their home for a 12-week period. It was a very comprehensive trial involving 336 children but it failed to show any primary benefit, based on the nurse's formal, routine monitoring of the eczema condition. It did however, show a small

benefit based on the opinion of the patient and the patient's family.

While this trial did not provide the supporting evidence expected, 66% of home owner participants opted to purchase the water softener after the trial⁹. In addition, water softener suppliers continue to receive customer reports of improvement in eczema conditions after a water softener has been installed.



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33% of eczema sufferers say their work/school/home life is affected by being ashamed, embarrassed and scratching³.

Kinetico product trial participant.

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The talkhealth Kinetico Product Trial



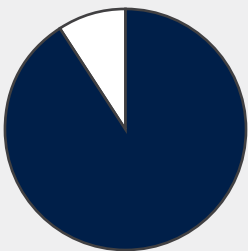
Kinetico commissioned talkhealth (www.talkhealthpartnership.com) to conduct an independent product trial and survey. The survey¹⁰ was carried out between August and December 2011 and was promoted to talkhealth members. 339 people completed the prequalification questionnaire and 23 participants were selected to have Kinetico water softeners installed in their homes for a three month period. The participants then completed a questionnaire at the end of each month, over a three month period. The quantitative and qualitative results were analysed and published in a report.

Commenting on behalf of talkhealth’s Kinetico product trialists, Deborah Mason, Director, talkhealth said, “In our experience, eczema is often managed with a combination of approaches, individual responses to treatment vary enormously, what works for one person may not necessarily work for another. The use of water softeners is often cited as helping to relieve the symptoms of eczema and other dry skin conditions, and we were interested to see that those who took part in the product trial experienced some improvement.”

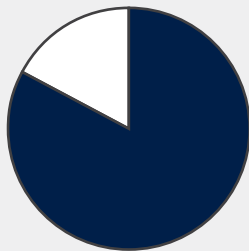
“If you have eczema and are in any doubt about treatments and products, please talk to your doctor or other healthcare professional.”

Participants who had a Kinetico water softener fitted found that:

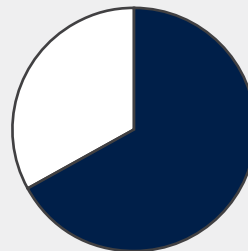
91% recorded less itchiness



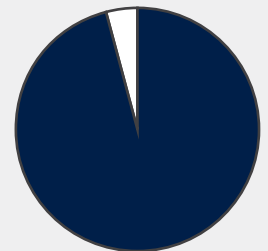
83% maintained that the water softener reduced the severity of their eczema



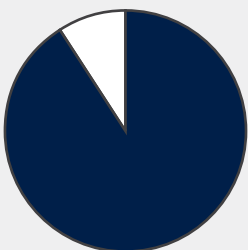
of the 78% regularly applying emollients or steroid cream, 67% were using less



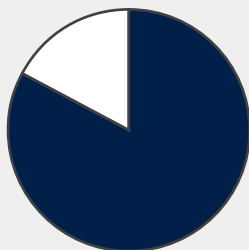
96% noticed smoother skin and softer hair



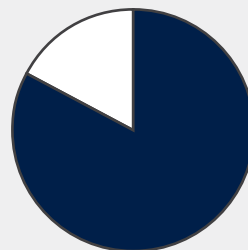
91% are using less soap and shampoo



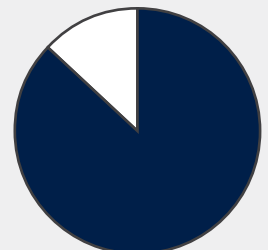
83% used less washing powder and detergent



83% noticed softer feeling towels and clothes



87% saw less scale on taps, showers, tiles



“It has made a vast improvement to Jessica’s skin condition even in the hot weather when it is normally really bad.”
 Parent of Kinetico trial participant

Comments on the trial:

Commenting on the Product Trial results, Julie Van Onselen, Independent Dermatology Nurse said,

“these results show the people who participated in this survey, felt the addition of a water softener benefitted and improved the severity of their eczema.

The most positive result is that people with eczema felt their skin was smoother and less itchy. The vicious scratch-itch cycle is often the hardest symptom to deal with, dry skin is itchy skin and itchy skin is scratched, which leads to damage and often a “flare-up” of eczema.” Therefore, if skin is less itchy, scratching and skin damage will reduce and eczema “flares” will reduce. People with eczema should use emollients for washing

and moisturising on an on-going daily basis to constantly repair their skin barrier (which is compromised in atopic eczema), soap should be avoided, as it is an irritant to eczematous skin. Those respondents who regularly applied emollients or steroid creams reported that they were using less of these products as a result of the trial. This indicates that a reduction in eczema treatment is possible. Soft water is certainly very helpful to reduce the amount of washing detergents needed and softer towels and clothes will be more comforting for people with eczema. We do know that people with eczema experience the need for “extra laundry, bathing and clothes, which add to the cost of atopic eczema”.

“The water softener clearly does help mine and my sons eczema and I am amazed at how quickly it helped too!”

Parent of Kinetico trial participant

“Although it won’t cure eczema it does prevent it from getting to a worse state.”

Parent of Kinetico trial participant

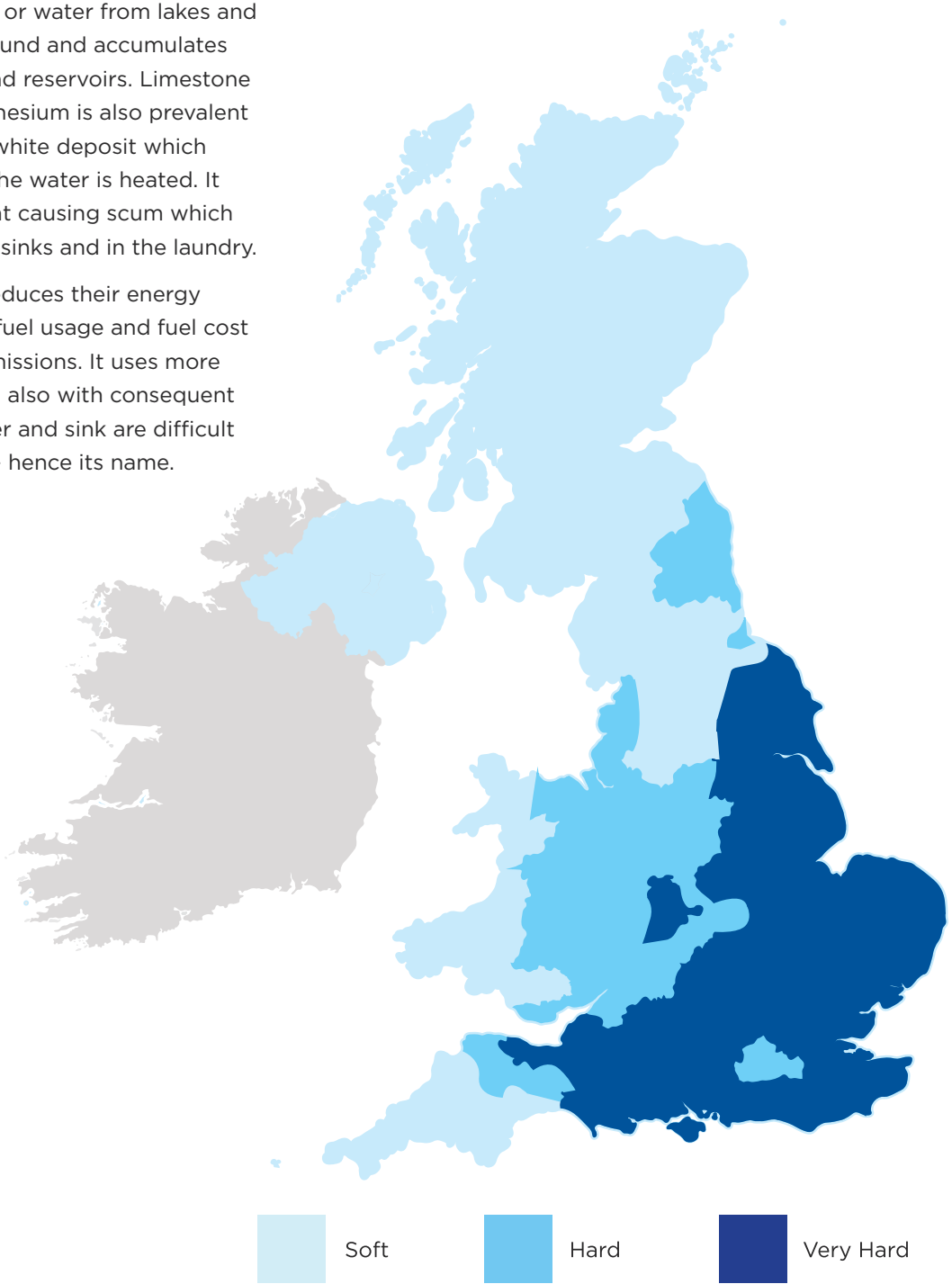


In the UK there are over 13 million homes situated in a hard water area.

Hard water and its effects

Hard water is caused by limestone dissolving into the natural “raw” water (e.g. rain water or water from lakes and rivers) as it passes through the ground and accumulates in aquifers (underground water) and reservoirs. Limestone is mainly calcium carbonate - magnesium is also prevalent in some areas - and it is this hard, white deposit which forms in boilers and kettles when the water is heated. It also reacts with soap and detergent causing scum which deposits on the skin, bath, shower, sinks and in the laundry.

The limescale deposits in boilers reduces their energy efficiency and therefore increases fuel usage and fuel cost - and increasing carbon dioxide emissions. It uses more soap and detergent by up to 70% - also with consequent cost. Scum around the bath, shower and sink are difficult to clean, and the water feels hard - hence its name.



Soft Hard Very Hard

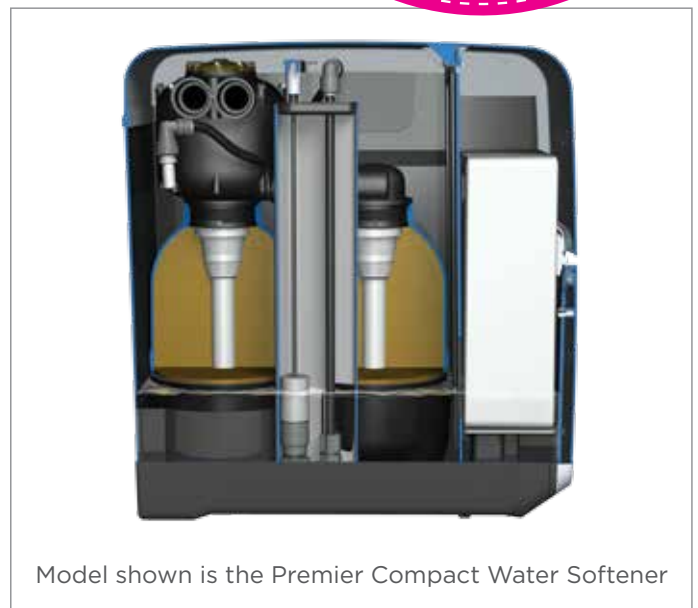
83% used less washing powder and detergent since installing a softener

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How it works

The water softener contains tiny beads of “ion exchange resin” which are preloaded with sodium and, as the water passes through the resin, the calcium (and magnesium) swaps places with the sodium, therefore the calcium is retained on the resin and sodium goes into the softened water. The resin eventually becomes saturated with calcium and needs to be regenerated - usually every few days. The water softener does this automatically by measuring the amount of water that has been softened and starting this process after a pre-set quantity of water has been softened.

The regeneration process uses salt (sodium chloride) and the sodium pushes the calcium off the resin and goes to drain. The sodium is retained on the resin ready to be put back into service. The only attention needed is to regularly check and replenish the salt.



Model shown is the Premier Compact Water Softener

Benefits



A water softener removes the calcium from the water which causes hardness and softened water has all the benefits of naturally soft water, including:

- Smoother skin and silkier hair
- Clothes feeling softer and looking brighter
- Preventing limescale in water heaters, central heating system, etc
- Saving fuel by increasing boiler efficiency
- Reducing boiler maintenance costs
- Reducing soap and detergent usage and cost
- Reducing scum on sanitary-ware
- Reducing cleaning frequency
- Reducing environmental impact by reduced carbon dioxide emissions and soap/detergent discharge to waste



67% used less emollient or steroid cream since starting the soft water trial.

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Conclusion

The possible benefit to eczema sufferers is frequently reported by water softener users. Some, but not all, studies have indicated a benefit and greater understanding will be gained by the additional research and clinical work already under way. The Kinetico survey clearly showed majority customer opinion that the water softener improved their eczema condition.

The benefits and cost savings of softened water are well

established in terms of scale reduction, boiler efficiency, soap and detergent savings, etc. and the Kinetico talkhealth survey demonstrates customer satisfaction in that respect.

by Tony Frost,

an independent consultant with over 35 years experience in water treatment design, supplies and services.

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