



IMMUNE BOOSTING PRACTICES THAT
CAN BE OFFERED AT HOT SPRINGS
AND RELATED RESEARCH

Contributions by members of the
Global Hot Springs Initiative to
share with the geothermal mineral
springs industry, in the wake of the
COVID-19 crisis.



**GLOBAL WELLNESS
INSTITUTE™**
EMPOWERING WELLNESS WORLDWIDE



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Part One: Academic research and findings

Obvious effect

Dr Agishi Yuko, Honorary professor of Hokkaido University (Japan), MD

As long as we take the right bathing method and guidance, hot spring bathing (balneotherapy) has obvious effect on improving the body's immunity. In my book "Hot Spring, Forest Bath and Health" (《温泉・森林浴と健康》, the real case is recorded: The research object, a local civil servant (male, 43 years old) in Japan, took part in one hour of exercise, meals and life guidance every day, supplemented by one hour of hot spring bathing (calcium sulphate, sulphate component, 40-degree celsius half-body bath). After 12 weeks of testing, the performance of the tester in vivo CD4 + and CD4 / 8 of human immune function maintained a good value, but the value of the same age group without the above activities was relatively low.

Inhibiting excessive immune response

Dr Yoshinori Ohtsuka, Professor of Sapporo International University (Japan), MD

If the bath composition does not reach the specified amount of pure hot spring (Japan's benchmark, temperature above 25°C), the immunity will not be improved. According to the study of Yufuin Onsen, the pupils who take balneotherapy every day have a significantly lower chance of catching cold than those who do not. In the study of the Teshikaga National Hospital, the immunity of the patients with hot spring therapy for rehabilitation was significantly improved.

On the other hand, it is also reported that soaking in very hot springs with strong acid stimulation (47°C, 3 minutes) like Kusatsu hot spring, can reduce the immune function. I think it's the body's own response as an immune overreaction, in fact, Kusatsu hot spring has some effect on allergic dermatitis and rheumatism. Normal people take a bath in Kusatsu hot spring, and their immunity should not decline. I think things like hot springs can inhibit the body's excessive immune response.

Increase sleep quality and immunity

Dr Goto Yasuaki, Senior Research Scientist
Japan Health & Research Institute, MD

The immunity can be improved by 'bathing x sleep', while the 'sleep quality' can be improved by soaking in hot spring before sleep, which is responsible for the regeneration of body functions. The sleep cycle is repeated about 90 minutes, but the

most important thing is to have deep sleep in the first cycle.

According to personal research, there are two benefits of hot springs:

1. "Soak in hot water 1-2 hours before going to bed." In the first cycle, the slow wave component of the brain wave, which represents the index of deep sleep, increased more in hot springs than in showers.
2. Warm water bath with suitable temperature (38-40°C) will make the autonomic nerve in the dominant position of parasympathetic nerve, and the body and mind will be relaxed. Let's warm up the body before going to bed, increase quality and smooth sleep, and enhance immunity!

Auto-immune disease? Balneotherapy may refocus your immune system

James Clark-Kennedy

PhD Candidate, School of Health & Biomedical Sciences, RMIT University (Australia)

Those with auto-immune conditions, such as inflammatory arthritis, are a large group for whom balneotherapy may improve their immune system.

It's estimated that between 5% and 9% of people have an auto-immune disease and are more susceptible to illness/infection such as the common cold/flu.

Auto-immune diseases, where the immune system attacks the body's own cells/organs, also tend to weaken the body's ability to fend off external threats.

Other than arthritis, more than 80 auto-immune diseases are known, including: lupus, multiple sclerosis, type 1 diabetes, Celiac disease, Ankylosing spondylitis.

Investigators have found that balneotherapy moderates the immune system's attack on itself – perhaps a result of the anti-inflammatory effects - therefore helping restore the ability of the system to focus on external invasion.

Some of the published studies which explore this relationship:

- Gálvez, I., S. Torres-Piles and E. Ortega-Rincón (2018). "Balneotherapy, immune system, and stress response: A hormetic strategy?" *International Journal of Molecular Sciences* 19(6).
- Sukenik, S., M. Abu-Shakra and D. Flusser (1997). "Balneotherapy in autoimmune disease." *Israel Journal of Medical Sciences* 33(4): 258-261.
- Peter, A. and H. Wagner (1980). "Changes of immunological components of the blood under health resort therapy in patients with rheumatoid arthritis." *Zeitschrift für die Gesamte Innere Medizin und Ihre Grenzgebiete* 35(7):300-303.



Part Two: Related therapies

Sweat bathing against coronavirus

Risto Elomma, President of the International Sauna Association, Helsinki

It is well-known (and it has been proven by many scientific studies) that sauna is a great tool for strengthening the immune system. People who regularly go to the sauna for flu and colds practically forget or get sick very easily. However, as our folk wisdom says, 'it is not time to lick dogs when it comes to hunting'. In other words, if you grasp that it is time to boost your immunity, neither a bath, no echo, nor magical incantations will do you a couple of days. And yet, can the sauna help someone who has just grabbed hold of it now?

The main factor in the sauna, of course, is heat. When well-nourished and fasted, the body's internal temperature can rise to 38.5-39°C or even more. There is a great deal of research into how sauna can influence influenza and colds. For example, in 1990, University of Vienna researchers published the findings of their study. The volunteers were divided into two groups. One of them regularly visited the sauna for half a year, the other did not. For half a year their health status, colds, duration and severity were monitored. The study showed that the group that visited the sauna had up to two times fewer common colds. Meanwhile, the duration and severity of the disease varied slightly. One can only speculate that in such a relatively short period of time the hardening and immune boosting effect of the sauna was not yet quite evident, but the heat, if the bath was going on at the very beginning of the infection, simply destroyed the infection before it was in trouble.

What is the coronavirus wearing here? Let's think logically. Our body does not raise the temperature to frighten us – it is a protective reaction designed to fight infection. So does the sauna. Fever is the same, with or without the virus that attacks you with the crown, so mutate without knowing – you won't hold back. The good news is that coronavirus is extremely sensitive to high temperatures and one of the first signs of this infection is high temperatures not beat for at least a couple of days. The bad news is that if the infection is already prevalent, your body may simply not have enough resources to fight it. This means that by raising the body temperature at the very beginning, before the infection is very widespread and the body's natural defences are turned on, we have a chance to kill the virus before it causes any problems. When the body's temperature has risen, it's not time for a bath. You need to lie in bed and get treatment.

But here's another question – how do you know that you need to go to the sauna if you don't feel any symptoms? The answer is simple. Just go. Prophylactically. Remembering that the



incubation time of the virus can last 5-24 days, in the event of an epidemic threat, it is advisable to go to the bath more often than usual – twice a week. And try to get really deep and well warmed up.

Antivirus sauna procedure

Here are some tips you may find useful:

- Go to a warm but not too hot bath. Hot and dry (32°C and more) baths can have the opposite effect of burning the airways and opening the way for infection.
- Spend enough time in the sauna to warm up really deep.
- The whole warm-up cycle – 3 turns, more intense than one another. Their total duration shall not exceed 40 minutes.
- Try not to sit, but to lie down, and if possible, raise your legs. Wear a thick bath hat.
- Use the straps to make yourself warm - the best way to warm up your body. Be sure to have your feet well!
- If you have your own sauna, it is ideal to go with your loved ones, your family, not only to protect them, but also to avoid unnecessary contact with other potential carriers of the virus.
- Don't forget the natural (and pleasant) inhalations of bath antiseptics: essential oils (e.g. eucalyptus, tea tree), bee pitch, coniferous veins.
- Avoid freezing in the bathhouse, put on warm slippers, and put on a bathrobe.
- Avoid very cold showers – this reduces body warming. Add lukewarm water.
- After sunbathing, be sure to wrap warmly and lie down for at least 30 minutes to sweat well.
- Enjoy the sauna. Good mood and joy is one of the best ways to boost your immune system.
- Of course, these tips do not replace all other recommended safeguards. However, it is worth trying because it will significantly reduce your chances of getting sick.

If you get sick, information on the course of the disease:
The first symptom of the disease – a sudden rise in temperature – within 1-2 hours. It can reach 39°C and above. At the same time, joint and muscle pain begins, followed by headaches and severe weakness, a feeling that you would have been hit by a train, not once, but twice. Later, after 6-12 hours, an inhuman cough begins – you cough continuously at intervals of a few/ several seconds. Such an acute cough causes breathlessness in a few hours – you start to feel that you are short of air. Temperatures can rise further, joint/muscular/head aches increase, and coughing also causes sore throat.

Feel these symptoms?

If so, it's likely that you have one of the two types of coronavirus that has already been counted. Important – do not go to the sauna by any means – a rise in body temperature is a contraindication for the sauna! From the moment the temperature rises the body has activated its natural defences and everything depends on your immune system.

Laughter is the best medicine – A resource for boosting immunity and optimising wellbeing

Ros Ben-Moshe, Director LaughLife Wellbeing Programs (based in Australia), Global Laughter Ambassador

Most people have heard the saying 'laughter is the best medicine', but few people truly understand how to access its healing powers. During challenging times such as the one COVID-19 poses, a laughter mindset can help alleviate stress. It won't necessarily solve the problem, but it will help dissolve it. No matter where people are situated in the globe, we all laugh in the same language. One of the best ways to access your daily dose is through laughter yoga. This is a practice that does not rely on something funny happening to stimulate laughter, which is why it is so well suited to a hot spa setting. Through a series of simulated laughter exercises, together with deep breathing and clapping, in no time at all the laughter becomes real resulting in a host of physiological health benefits.

Here are some reasons laughter yoga should be considered as a holistic therapy in global hot spas, particularly in the current climate of fear and DIS-ease. After all, infectious laughter is the only infection you want to get! All health benefits are evidence-based (specific studies available on request).

1) Laughter increases oxygen levels in your body. This optimises healthy body and brain functioning, improving concentration and productivity levels. Prolonged laughter helps rid the body of residual air, replacing it with energy rich oxygen. It's an aerobic activity and we know how beneficial aerobic activities are to our wellbeing.

2) Laughter strengthens your immunity.

When you laugh the number of immune cells and infection-fighting antibodies that improves your resistance to disease increases. Some research has even shown that mirthful laughter may increase natural killer cell levels, a type of white blood cell that attacks cancer cells.

3) Laughter is the best stress buster.

A hearty laugh reduces stress hormones resulting in lower tension, stress, anxiety and fear. It can even

lower your blood pressure. During times of heightened anxiety such as the broader fear around COVID-19 it's a great resource to access.

4) Laughter improves heart health and lung function.

When you laugh there's a contraction of muscles and an increase in blood flow and oxygen, which stimulates the heart and lungs.

5) Laughter stimulates the lymphatic system.

Genuine belly laughter manually moves your diaphragm, which prompts lymphatic circulation to remove waste fluid around our cells and also remove waste products, dead cells and any unwanted microorganisms.

6) Laughter and smiling triggers the release of endorphins (happy hormones).

Endorphins are what give you that happy high, making you more relaxed physically and emotionally. They're 30 times more powerful than morphine and are one of the body's pain modulation sources.

7) Laughter helps you connect with others.

No matter your age, laughter is a super-bonder. Sharing a laugh or a smile with another person's creates a level of intimacy. Everyone laughs in the same language.

8) Laughter is a form of meditation.

It activates the body's natural relaxation response and brings you into the present moment. Laughter can be viewed as a whole brain experience, stimulating both hemispheres of the brain whereby brain wave frequencies are similar to what has been observed when a person engages in meditation.

9) Laughter builds resilience.

Learning to laugh at yourself assists in adjusting to stress and adversity. It might take some time to be able to laugh after a painful event, but when you do it actually helps your brain of some of the pain and trauma you have been carrying.

10) Laughter creates a positive mindset

Laughter orients the brain to a positive mindset – regular laughter and smiling actually rewire the brain to a state of calm, joy and awareness.



Music and the immune system

Published: 1999, Rollin McCraty, Ph.D.

Proceedings of the Tenth International Montreux Congress on Stress, Montreux, Switzerland, 1999.

Ref: <https://www.heartmath.org/research/research-library/abstracts/music-and-the-immune-system/>

There is considerable scientific rationale to support the use of music to enhance immunity via its powerful influence on emotions. Music's ability to alter mood and emotional state has long been known experientially, and more recently has been scientifically documented. Likewise, it is well recognised that mental and emotional states can alter autonomic nervous system (ANS) activity and balance. The ANS, in turn, can modulate virtually every aspect of immune function, both through direct innervation of lymphoid tissues and by way of its regulatory influence on immunomodulatory hormones. The interaction between feeling states, immunity and autonomic function has been highlighted by a number of studies showing that negative emotions such as anger and hostility stimulate sympathetic activity, increase the cortisol/DHEA ratio and suppress the immune system, while positive emotional states such as appreciation enhance parasympathetic activity, increase physiological coherence, reduce the cortisol/DHEA ratio and boost immunity.

Recent research has examined the physiological and psychological effects of music that integrates particular rhythmic patterns, tone textures, chord progressions and harmonic resonances specifically designed to help reduce stress, facilitate the experience of sustained positive emotional states and enhance the benefits of stress management interventions. Used regularly in conjunction with an emotional self-management program, this scientifically designed music has been found to increase DHEA, reduce cortisol, improve autonomic balance and increase coherence in the ANS, facilitating the entrainment of physiological systems. In addition, this music has been demonstrated to help reduce stress and negative emotion and increase positive emotion in both healthy populations and in individuals with clinical conditions such as anxiety, depression, panic, arrhythmias, diabetes and chronic fatigue.

The present study examined the effects of music and positive emotional states on the immune system in healthy individuals ($n = 10$). Autonomic activity was assessed using power spectral density analysis of heart rate variability, and secretory immunoglobulin A (S-IgA), measured from saliva samples, was used a marker of immunity. The autonomic and immune effects of rock and New Age music selections were compared to those produced by Heart Zones, music designed to facilitate stress reduction and promote emotional balance. Listening to Heart



Floating in hot springs with underwater speakers listening to immune boosting music

Zones for 15 minutes produced a significant increase in total autonomic activity ($p < .05$) and an average increase of 55% in S-IgA levels ($p < .01$). In contrast, neither rock, New Age music nor a control period of silence produced significant changes in total autonomic activity or in S-IgA concentrations. Rock music decreased power in the high frequency region of the heart rate variability power spectrum ($p < .05$), suggesting a reduction in parasympathetic activity.

A second phase of the study examined the immune and autonomic effects of music used in conjunction with an emotional self-management intervention known as the Heart Lock-In, a technique designed to improve autonomic balance, increase physiological coherence and promote the experience of sustained positive emotional states. Performing the Heart Lock-In for 15 minutes without music produced a significant average increase of 50% in S-IgA levels ($p < .05$). However, the combination of the Heart Lock-In facilitated by the Heart Zones music increased S-IgA levels by 141% ($p < .01$), a significantly greater immunoenhancement than was produced by either the music or the intervention alone. The music combined with the Heart Lock-In also produced a significant increase in total autonomic activity ($p < .01$) as well as in power in the low frequency region of the heart rate variability power spectrum (0.04-0.15 Hz) ($p < .05$). This is consistent with previous findings indicating that the use of music to facilitate heart-focused self-management interventions tends to produce a large, narrow peak in this low frequency range, which corresponds to the entrainment of respiration, blood pressure waves and brain wave patterns to the heart rhythms at a frequency of approximately 0.1 Hz. This state of increased physiological coherence is characterised by increased parasympathetic activity, increased vascular resonance, and improved sympathovagal

balance, and is also generally accompanied by enhanced emotional balance and mental clarity.

In conclusion, results indicate that music can be designed to potentiate the immunoenhancing effects of positive emotional states. The data, combined with previous findings, suggest that these effects are likely to be autonomically mediated and facilitated by increased physiological coherence. This study suggests that the use of music in conjunction with effective techniques for emotional self-management can be a practical, inexpensive and non-invasive method to enhance immunity. Such interventions may yield significant health benefits both in healthy individuals and in a variety of clinical conditions in which there is immunosuppression and autonomic imbalance.

Links to music:

- <https://www.youtube.com/watch?v=oRNF5qHrAEU&feature=youtu.be>
- Zen Life Relax - "432hz : the deepest healing to let go of negative energy" is a great link: <https://youtu.be/4wtG01ymIjE>
- <https://music.apple.com/au/playlist/solfeggio-frequencies-852-963-hz/pl.u-GgA5eY6toa9YAeN>

Immune boosting wellness programs at hot springs destinations

Amanda Wilson, Omdanne Retreats

1. Cold Water Immersion Therapy

Exposing the body to a cold shower or cold plunge pool for a short period of time constricts the blood vessels that helps reduce swelling and inflammation within the body and boosts the activity of the lymphatic system which promotes detoxification.

2. Hot and Cold Contrast Therapy

Cooling down after exposure to hot bathing, steam rooms and sauna by alternating hot and cold actions is beneficial to stimulate blood circulation and strengthen the cardiovascular system and increasing the metabolic rate. Cold plunge pools, cold showers, ice caves and waterfalls.

3. Specialised bathing in hot spring pools or private mineral baths:

- Fresh herbs or aromatherapy oils infused into water helps to promote detoxification, decrease stress, anxiety and promote peaceful sleep.
- Salt floatation therapy is a zero-gravity environment that allows the mind and body to completely let go, relax, and reset.
- Colour therapy is used in ambient cave pools which aim to bring balance to the energy of the body.

4. Stay hydrated

Water helps to flush toxins waste and bacteria from the body to fight disease and infection as well as strengthens the immune

system. This is one of the easiest and most effective things to ward off viral illnesses. Try to drink at least half your body weight in ounces of water each day to ensure proper hydration. Have generous and accessible water stations located throughout the facilities.

5. Tea houses and tea rituals



Tea has been used for health purposes for centuries in China. The main health-promoting substances in tea are polyphenols, catechins and epicatechins. Studies say these molecules have anti-inflammatory and antioxidant properties. Examples include white tea, green tea, matcha tea, nettle, ginseng, holy basil, echinacea or ginger blends. Provide tea stations throughout the facilities.

6. Healthy eating

Nutritional deficiencies can impair immune function, increasing both the risk and severity of illness and infection. The immune system can be strengthened by eating the rainbow of local, seasonal fresh fruits and vegetables and incorporating antioxidant rich foods into menus; examples include citrus, elderberry, ginger, garlic, turmeric, papaya, mushrooms, berries, matcha and more. These are high in essential vitamins and minerals. A kitchen garden can provide fresh farm-to-table produce in restaurants and cafes.

7. Vitamin C

Physicians at the International Society for Orthomolecular Medicine suggest high dose vitamin therapy may prevent the transmission of COVID-19 and that preventing and treating respiratory infections with large amounts of vitamin C is well established. Serve freshly pressed citrus, pineapple, cranberry and elderberry juices. Examples of foods high in Vitamin C that could be included in restaurant or cafe dishes are chillies, rosehips, Kakadu plum, guava, cherries, spinach, broccoli and peppers.

8. Sunshine

Vitamin D deficiency can suppress immune function. Hot springs can provide sundecks with lounges, chairs and pools with direct sunlight exposure for safe sunbathing. Studies indicate that vitamin D may also help immune cells identify and destroy bacteria and viruses.

9. *Tai Chi and Qi Gong Classes*

This daily practice is designed to rejuvenate the immune system. Barefoot on the earth or in bathing pools. These age-old teachings offer a gentle practice of movement, visualisation, sound, and meditation to help awaken joy and healing from within.

10. *Fitness retreats*

Regular exercise in fresh air is one of the pillars of healthy living, it improves cardiovascular health, lowers blood pressure, helps control body weight and protects against a variety of diseases. Hiking, walking, bike riding, golf, yoga, Pilates and dancing activities combined with bathing all contribute to a healthy immune system.

11. *Breathwork practice*

If hot spring destinations are located in nature with clean fresh air then the way we breathe strongly affects the chemical and physiological activities in the body. By practicing breathing exercises, waste materials are more easily released. The simple act of correct breathing techniques and deep diaphragmatic breathing can strengthen immune defences.

12. *Pranayama*

Is the practice of breath control in yoga. In modern yoga as exercise it consists of synchronising the breath with movements between asanas but is also a distinct breathing exercise on its own. Daily pranayama trains the lungs by improving the capacity of the respiratory system and directly works to positively affect the autonomic nervous system which controls and governs essential functions of the body.



13. *Yoga classes*

Lowers stress hormone levels and calms the nervous system to reduce inflammation. Deep breathing helps to boost resistance to infection, inverted yoga poses help circulate fluid through the lymphatic system, filtering out toxins.

14. *Meditation*

Group or individual meditation improves immune and cognitive function, helps cultivate healthy sleep patterns and reduces blood pressure. Guided meditations, group sound bath meditations with Tibetan or quartz singing bowls and gong baths

are all methods designed to reduce stress, tension and cortisol levels in the body.

15. *Earthing*

Earthing (or grounding) is a therapeutic technique that focuses on realigning the body's electrical energy by reconnecting to the earth such as walking barefoot outside or lying/sitting in hot springs pools. The earth has an infinite supply of free electrons, so when a person is grounded, those electrons naturally flow between the earth and the body, reducing free radicals and eliminating any static electrical charge. Studies indicate that the reason grounding is so powerful is it reduces and prevents inflammation from occurring in the body, which in turn prevents inflammation-related health disorders.

16. *Forest Bathing (Shinrin Yoku)*

The intentional practice of connecting with nature and to the energy of the natural world. Mindful walking is calming and soothing to the nervous system and can help boost immune function. Benefits include improved sleep, sunlight exposure, physical activity, reduced stress hormone production, improve feelings of happiness, lower heart rate and blood pressure. It was discovered that phytoncides, a chemical released by plants, could also boost the immune system. Encourage walking paths throughout the hot springs is areas of nature.

17. *Mind Body Education*

Workshops, communications and collaterals for staff and customers. (Hygiene) The practice of good hygiene and educate on how to combat the spread of infection. (Sleep) The most critical immune building processes happen in our sleep, it is proven that short sleepers are more likely to catch a cold.

(Chronic Stress) Impacts immunity and will suppress the effectiveness of the immune system by causing the body to produce greater levels of the hormone cortisol, which over time produces inflammation and leaves the body more susceptible to infections.

(Smoking) The effects of tobacco smoke on the immune system include a greater susceptibility to infections such as pneumonia and influenza, more severe and longer-lasting illnesses and lower levels of protective antioxidants (such as vitamin C) in the blood.

(Nutrition) The foods we eat modulate our immune system in many ways and can efficiently reduce the risk of infection.

(Wellbeing Programs for Employees) To support and educate the staff working in the facilities.

18. *Aromatherapy*

One way to kill airborne viruses and bacteria is to diffuse pure essential oils in enclosed areas such as treatment rooms or tea lounges. Blends for boosting the immune system can include lemon, eucalyptus, clove, peppermint, cinnamon, rosemary,

oregano, lime, cypress. Aromatherapy diffusion can also include bathing pools and showers.

19. Salt therapy (Halotherapy)

Salt rooms can help cleanse the lungs and respiratory system and have been used in Europe for more than 150 years to improve sleep, skin, sports performance/recovery and relieve stress. Himalayan salt emits negative ions that are absorbed directly into the bloodstream and may help to combat free radicals within the body. They have a relaxing effect and have been reported to normalise breathing rates, decrease blood pressure and relieve tension. Salt also has antibacterial, anti-inflammatory and antifungal properties.

20. Infrared saunas

Infrared saunas are designed to raise body core temperature, stimulate the circulatory system, causing the heart to beat more vigorously and blood vessels to dilate, which help cleanse the circulatory system and more fully oxygenate the body's cells. Better blood circulation means more toxins flow from the cellular level to the skin's surface to improve cell health, aid in muscle recovery and strengthen the immune system.

21. Massage and detoxifying body treatments

The lymphatic system plays an integral role in the immune functions of the body; it is the first line of defence against infection and disease. Circulation is also improved by body brushing, thermal body muds, salt body scrubs, body wraps, hammam rituals and body massage which all produce measurable biological effects to positively influence the immune system.

22. Reflexology lounges

Reflexology with therapists to provide acupressure massage and reflexology for reducing stress and tension throughout the body's systems that will improve blood and lymph circulation and release toxins from the body's tissues.

23. Natural and traditional Chinese medicines

Resident or visiting expert practitioners offering Acupuncture, Oriental Medicines, Cupping therapy, Herbal Remedies, Ayurveda, Homeopathy, Naturopathy. TCM Treatment focuses on restoring your protective qi's equilibrium to optimise your body's natural resistance and healing ability. Homeopathy emphasises treating the underlying imbalance in the immune system rather than fighting the infection.

Herbal remedies can be an effective way of treating and relieving some of the major symptoms of viruses and can also reduce the duration.

24. Extreme bathing/extreme wellness

Pushing the body to extremes may help stimulate the immune system and the body's self-healing mechanisms. Natural hot springs are playing host to extreme wellness retreats and



adventures: The extreme comfort of natural hot pools provides a stark contrast to bathing in snow-covered mountain streams, or try a walking tour in the forest punctuated by the discovery of portable heated hydro-hammocks or makeshift steam room tents.

25. Singing, sound healing, ambient music and mantra

Singing activates the spleen, helping to increase the blood concentrations of antibodies and boost the immune system. Musical events and instruments, concerts, sound bath healing and group singing mantra can help to balance out the frequencies of the body and reduce the stress hormones that can suppress the many functions of the immune system. Ambient music, sound bowls or guided meditations can be played throughout the facilities.

Immune boosting with plant therapy and hot springs bathing

Theme Rains, Founder and Formulator of Synthesis

In light of current concerns over coronavirus (2019-nCoV) and overall recent increase in exposure to harmful viruses, 'superbug' bacteria and parasites, there is no better time to focus our attention on tried and true preventative lifestyle activities to boost our immune system. With a robust immune system we are much better equipped to overwhelm and repel any exposure to these potentially harmful influences.

In this regard, we can all agree about the amazing immune boosting benefits of hot springs bathing. Here we explore the various ways that botanicals can be integrated into the hot springs bathing experience to supplement and activate optimal wellness benefits. Suggestions for botanical integration include:

- Medicinal herb garden
- Aroma bathing and showers
- On-site distillation and infusions
- Educational workshops and retail experiences

While a proper medicinal garden requires time to develop, the integration of essential oils proven to have an immune boosting effect could be immediately introduced into the hot spring environment through diffusion in public areas of the hot spring,

in saunas, and herbal bath preparations. Those essential oils known to have immune boosting benefits would include, but not limited to:

- Eucalyptus essential oil
- Tea Tree essential oil
- Cinnamon essential oil
- Breath of Australia essential oil blend
- ImmuniTea bath blend

The evidence for the immune boosting benefits of botanicals is substantial. Studies involving essential oils such as bergamot, eucalyptus, geranium, cinnamon, lemongrass and thyme demonstrated all to be extremely effective against influenza virus after only 10-30 minutes of exposure.

While cinnamon possessed the most potent anti-influenza activity in both liquid and vapour form, all of the studies concluded that the vapourised form of essential oils displayed the most prominent and effective antiviral and antimicrobial effects. In this regard, Eucalyptus displayed the most significant activity against influenza virus after only 10 minutes, while the other essential oils showed activity after 30 minutes. Additionally, the essential oil vapours studied displayed no measurable adverse effect on lung epithelial cells.

An Australian study demonstrated that vapourised tea tree oil was also very effective as an antiviral for airborne influenza virus. The study found tea tree oil was able to achieve complete virus inactivation and concluded that tea tree oil in a mist spray may also be used on a filter surface (such as a face mask or air conditioning filter) to achieve optimal antiviral activity.³

Herbal antibiotics: plant medicine has an important role to play in protecting against and treating 'superbugs'

As the United States Center of Disease Control has made clear, antimicrobial resistance is one of the biggest global health threats facing humanity now and, in the future, to come. Our reliance on antibiotics and the overuse as a result has not led to a healthier population but rather to widespread antibiotic resistance and a breakdown of the human immune system. A return to a simpler immune system building approach, using herbal antibiotics and botanicals, is perhaps the most timely and responsible measure we can take in order to safeguard our health and of the generations yet to come.

FOOD BOWL - MEDICINAL HERB & SPICE GARDEN + HEALING FOREST

All of the following have immune boosting properties, * marks the ones with the most evidence-based research behind them, as initial focus. Incorporating indigenous medicine with herbs native to the hot springs area is also recommended.



Immune boosting herbs

Astragalus	Astragalus Membranaceus
Basil	Ocimum Basilicum
Cat's Claw	Uncaria Tomentosa
Chamomile	Chamaemelum anthemis nobile
Clary Sage	Salvia sclarea
Coriander	Coriandrum sativum
Echinacea*	E. purpurea and E. angustifolia
Finger Lime	Citrus australasica
Geranium	Pelargonium graveolens
Ginger*	Zingiber Officinale
Grapefruit	Citrus paradisi
Kunzea	Kunzea ambigua
Ginseng	Panax Ginseng
Lemongrass	Cymbopogon flexuosus
Licorice	Glycyrrhiza Glabra
Lemon Balm	Melissa Officinalis
Marjoram	Origanum marjorana
Mullein	Verbascum Thapsus
Oregano*	Origanum Compactum
Parsley	Petroselinum crispum
Peppermint	Mentha Piperita
Rosalina	Melaleuca ericifolia
Rosemary	Rosmarinus officinalis
St John's Wort	Hypericum Perforatum
Sage*	Salvia sclarea
Thyme*	Thymus vulgairs
Tulsi	Ocimum tenuiflorum
Turmeric	Curcuma Longa

Healing Forest - for immune boosting trees

Cinnamon*	Cinnamomum zeylanicum
Eucalyptus*	Eucalyptus polybractea
Finger Lime	Citrus australasica
Lemon*	Citrus Limon
Lemon Myrtle*	Backhousia Citriodora
Lime	Citrus aurantifolia
Mandarin	Citrus nobilis
Orange	Citrus Aurantium Dulcis
Ribbery	Syzygium luehmannii
Tea Tree*	Melaleuca alternifolia

PRODUCE FROM THE HERB & SPICE GARDEN + FOREST

The produce can be used as herbal teas, healing foods, bathing infusions and in the sauna. With extraction and distillation equipment they can also be made into essential oils, tinctures and hydrosols.

The herbs and spices stimulate the immune system and teach the body to combat illness more effectively.



Herbal teas - fresh and dried

Immune boosting herbal tea combinations:

Lemon, Ginger, Echinacea, Turmeric, Lemon Myrtle, Thyme, Tulsi, Oregano etc

E.g. Immune boosting tea recipe:

- 1 teaspoon licorice root
- 1 teaspoon ginger root
- 1 teaspoon astragalus root
- 1 teaspoon cat's claw
- 1 teaspoon peppermint
- 1 teaspoon lemon myrtle
- 1 teaspoon echinacea
- 1 teaspoon mullein
- 1 teaspoon honey (to taste per cup)

A menu can be created for these depending on the herbs being grown.

Immune boosting salads and soups in the restaurant

Basil, Finger Lime, Thyme, Oregano, Garlic, Ginger etc

Herbal saunas and private baths

Diffuse fresh herbs into the sauna and gather them in large tea bags to infuse into private baths. Eucalyptus, Geranium Lemon Myrtle, Tea Tree, Lemongrass, Thyme, Cinnamon Peppermint etc

Infusions, tinctures and distillations

To be applied topically, taken internally or diffused into the atmosphere. Eucalyptus, Geranium, Lemon Myrtle, Tea Tree, Lemongrass, Thyme, Cinnamon etc.

For example, an immune boosting tincture can be created from plants similar to the immune boosting tea.

EDUCATIONAL WORKSHOP CONCEPTS

1. Distillation/extraction
2. Harvesting
3. DIY immune health (making herbal teas, steams, salves, infusions)
4. Immune boosting cooking
5. Aromatherapy for immune health

EXPERIENTIAL RETAIL CONCEPTS

Guests can sample various botanicals and be guided by a trained host to purchase customized botanical mixtures that most support their wellness goals.

Immune boosting food

Josh Ball, Special Food Experience Advisor to the Peninsula Hot Springs Group

We are what we eat and drink, so it stands to good reason that if we consume food and drinks that give us nutrients to support the wellness of bodies and beings, we increase our WELLNESS. More specifically for the purposes of this paper, food and drink that bolster our immune system, and that will combat influenzas and similar airborne and contact illnesses.

At hot springs we cannot only feed and rejuvenate the body through the healing properties of the water, but we can do it through what food and drinks we serve.

Variety is the key to proper nutrition. Eating just one of these foods won't be enough to help fight off the flu, even if you eat it constantly. Pay attention to serving sizes and recommended daily intake so that you don't get too much of a single vitamin and too little of others.

Vitamin C is thought to increase the production of white blood cells. These are key to fighting infections. These include: grapefruit, oranges, tangerines, lemons, limes, clementines.

Because your body doesn't produce or store it, you need daily vitamin C for continued health. Almost all citrus fruits are high in vitamin C. With such a variety to choose from, it's easy to add a squeeze of this vitamin to any meal or drink.

Red bell peppers

Gram for gram, red bell peppers contain twice as much vitamin C as citrus. They're also a rich source of beta carotene. Besides boosting your immune system, vitamin C may help maintain healthy skin. Beta carotene helps keep your eyes and skin healthy.

Broccoli is supercharged with vitamins and minerals. Packed with vitamins A, C, and E, as well as many other antioxidants and fibre. Broccoli is one of the healthiest vegetables you can eat. The key to keeping its power intact is to cook it as little as possible.

Garlic is found in almost every cuisine in the world.

Early civilisations recognised its value in fighting infections. According to the National Center for Complementary and Integrative Health Trusted Source, garlic may also help lower blood pressure and slow down hardening of the arteries. Garlic's immune-boosting properties seem to come from a heavy concentration of sulfur-containing compounds, such as allicin. Ginger is another ingredient many turn to after getting sick. Ginger may help decrease inflammation, which can help reduce a sore throat and other inflammatory illnesses. Ginger may also help decrease nausea. While it's used in many sweet desserts, ginger packs some heat in the form of gingerol, a relative of capsaicin. Ginger may help decrease chronic pain and may possess cholesterol-lowering properties.

Spinach is rich in vitamin C. It's also packed with numerous antioxidants and beta carotene, which may increase the infection-fighting ability of our immune systems. Similar to broccoli, spinach is healthiest when it's cooked as little as possible so that it retains its nutrients. However, light cooking enhances its vitamin A and allows other nutrients to be released from oxalic acid.

We need to be specific and make sure we are using NATURAL yoghurts, such as Greek yoghurt, as these contains live bacterias and cultures. These cultures may stimulate your immune system to help fight diseases. Yoghurt can also be a great source of vitamin D (it is often added). Vitamin D helps regulate the immune system and is thought to boost our body's natural defences against diseases.

Almonds: When it comes to preventing and fighting off colds, vitamin E tends to take a backseat to vitamin C. However, vitamin E is key to a healthy immune system. It's a fat-soluble vitamin, meaning it requires the presence of fat to be absorbed properly. Nuts, such as almonds, are packed with the vitamin and also have healthy fats. A half-cup serving, which is about 46 whole, shelled almonds, provides nearly 100 percent of the recommended daily amount of vitamin E.

You may know turmeric as a key ingredient in many curries. But this bright yellow, bitter spice has also been used for years as an anti-inflammatory in treating both osteoarthritis and rheumatoid arthritis. Also it has high concentrations of curcumin, which gives turmeric its distinctive color, can help decrease exercise-induced muscle damage.

Both green and black teas are packed with flavonoids, a type of antioxidant. Where green tea really excels is in its levels of epigallocatechin gallate, or EGCG, another powerful antioxidant. EGCG has been shown to enhance immune function. The fermentation process black tea goes through destroys a lot of the EGCG. Green tea, on the other hand, is steamed and not fermented, so the EGCG is preserved. Green tea is also a good



source of the amino acid L-theanine. L-theanine may aid in the production of germ-fighting compounds in your T-cells.

Papaya is another fruit loaded with vitamin C. You can find 224 percent of the daily recommended amount of vitamin C in a single papaya. Papayas also have a digestive enzyme called papain that has anti-inflammatory effects. Papayas have decent amounts of potassium, B vitamins, and folate, all of which are beneficial to your overall health.

Like papayas, kiwis are naturally full of a ton of essential nutrients, including folate, potassium, vitamin K, and vitamin C. Vitamin C boosts white blood cells to fight infection, while kiwis' other nutrients keep the rest of your body functioning properly. When you're sick, chicken soup is more than just a feel-good food with a placebo effect. It helps improve symptoms of a cold and also helps protect you from getting sick in the first place. Poultry, such as chicken and turkey, is high in vitamin B-6. About 3 ounces of light turkey or chicken meat contains 40 to 50 percent of your daily recommended amount of B-6. Vitamin B-6 is an important player in many of the chemical reactions that happen in the body. It's also vital to the formation of new and healthy red blood cells. Stock or broth made by boiling chicken bones contains gelatin, chondroitin, and other nutrients helpful for gut healing and immunity.

Sunflower seeds are full of nutrients, including phosphorous, magnesium, and vitamin B-6. They're also incredibly high in vitamin E, a powerful antioxidant. Vitamin E is important in regulating and maintaining immune system function. Other foods with high amounts of vitamin E include avocados and dark leafy greens.

Shellfish isn't what jumps to mind for many who are trying to boost their immune system, but some types of shellfish are packed with zinc. Zinc doesn't get as much attention as many other vitamins and minerals, but our bodies need it so that our immune cells can function as intended. Varieties of shellfish that

are high in zinc include: crab, clams, lobster and mussels. Keep in mind that you don't want to have more than the daily recommended amount of zinc in your diet. For adult men, it's 11 milligrams (mg), and for women, it's 8 mg. Too much zinc can actually inhibit immune system function.

Vitamin D

Many people fall short of their daily vitamin D requirements. Foods that are good sources of vitamin D include egg yolks, mushrooms, salmon, canned tuna, and beef liver. Within hot springs, having spaces that people can relax in the sun in-between bathes, would be a good initiative.

Offering stress relieving treatments

Stress has a significant effect on your immune system. During stress, a series of events release cortisol, adrenaline, and other stress hormones from the adrenal gland. Together they help your body cope with stress. Normally, cortisol is helpful because it decreases the inflammation in the body that results from the immune responses caused by stress. But if a person is chronically stressed, stress hormones can affect the way the body functions over time. This increases your risk of health problems, including: anxiety, depression, digestive issues, heart disease, sleep disorders, weight gain and problems with memory and concentration.

Some good ways to offer stress relieving treatments include: meditation, yoga, acupuncture, talk therapy, art therapy, exercise, eating healthfully.

Boost your immune system by drinking water

The Tyent Team January 30, 2019

<https://www.tyentusa.com/blog/immune-system-drinking-water/>

Having allergies and getting sick are unfortunate facts of life. Here in the busy and rowdy 21st century, we interact with a lot of people.

We shake hands, hug, touch handrails that others touch, share living spaces, use public transportation, breathe the same air — all exposing us to viral infections, diseases and other health threats. A person could simply sneeze and everyone in the surrounding area is already made susceptible to infection. While exposure cannot be completely avoided, boosting the immune system is possible. A stronger immune function helps fight a lot of health threats.

How do we strengthen our immune system? The answer is simple, easy, and affordable.

Through clean, nutrient-rich drinking water. You don't need to

break the bank for pricey health supplements or food products that don't really promise nor do much.

Water can work miracles for your body, especially for your immune system. It is a natural immunity booster which promotes health and well-being.

Benefits of drinking water

1. It pumps oxygen around the body

The list of benefits you can get from drinking water is almost endless. We cannot emphasise enough how important they are. Take the case of being in a weakened and sickly state. A simple drink of water refreshes you as it helps carry oxygen throughout the body — to organs, tissues, and blood cells. It pumps up bodily functions to full capacity making you feel and perform better physically.

2. It flushes out toxins and free radicals

Water also promotes adaptive immune response by working to get rid of toxic foreign invaders from the body through the kidneys. It prevents toxin build-up which, in turn, boosts immune function.

While we're talking about getting rid of toxins from the body, we're sure you've heard of lemon water and hot tea.

Lemon squeezed in water is a good source of Vitamin C. It not only adds a citrus flavour to the drink but also:

- Boosts the function of the immune system
- Fights bacteria, viruses, and fungi that cause cold, flu, and infection
- Keeps foreign substances away from cells
- Helps prevent diseases
- Aids in digestion
- Promotes detoxification

Water boosted with the flavour of natural tea brews enhances the body's immune response. It also supports cardiovascular and musculoskeletal health. Warm tea, like lemon water, is also rich in antioxidants that promote detoxification from cancer-causing free radicals.

Frade: highly reactive molecules that pair with oxygen or peroxide through the process of oxidation to produce protein-damaging acids in the blood.

3) It promotes good quality sleep and rest

Are you feeling weak because you can't seem to get a good night's sleep? Proper hydration can help solve that problem, too. Drinking water regularly triggers the brain to produce melatonin and other sleep-inducing chemicals. The result is a good quality of rest and a completely recharged body.

4) It increases the production of lymph fluid

Lymph fluid is the fluid that flows around the body to collect bacteria and waste. It transports all collected waste to the



lymph nodes which serve as filters. Drinking water works like a waterfall for lymphatic organs. The higher the amount, the stronger the push to the edge.

In this scenario, water pushes bodily waste into the lymph nodes where lymphocytes destroy them, keeping them from impairing immune function and causing life-threatening conditions like leukemia.

Lymphocytes definition: white blood cells in the immune system known to detect foreign antigens and produce antibodies to destroy them; has 3 main types: B cells, T cells, and natural killer cells.

5) It cleanses our senses

Water works to cleanse the body as implied in the statements above. For our sense organs, like the skin, eyes, and mouth, it maintains moisture on mucous membranes. A moist environment in these parts prevents infectious bacteria from penetrating the immune system.

Alongside maintaining a protective barrier, moisture brought about by water preserves organ elasticity and structure. You can bid dry skin goodbye by drinking water regularly.

Water fights off diseases and gets rid of dirt and germs on the skin's surface and our surroundings when used for:

- Handwashing
- Cleaning surfaces
- Washing the dishes
- Flushing out nasal discharge during a cold or allergy

Don't just drink tap water. Drink an immune system-friendly water.

Thoughts and ideas to boost immune systems

Peter Rule, Director of Good Health Rules specialising in assisting clients' health, wellness and life potential.

Naturopath - Remedial Therapist - Quantum Healing Hypnosis Technique Practitioner - Life/Wellness Coach - Life Path Astrologer - Seminar Facilitator.

1. Herbs that come up strong which you may know are actually mushrooms - Shitake, Reishi, Lion's Mane - not sure how much your restaurants have Japanese on the menu, but these are excellent for immune boosting.
2. Herbs - like Echinacea, Olive leaf extract - (Olive Leaf Extract was used extensively with the SARS virus in Hong Kong - 20mls twice per day), Andrographis and Astragalus are very strong herbs for addressing the immune system.
3. Zinc and Vitamin C
4. Probiotics - 80% of the immune system is reliant on good bacteria. Prebiotic and probiotic foods can be really helpful here. Fermented foods like Sauerkraut, Kim Chee, Kefir, Kombucha, Yoghurt.



Activities:

1. Relaxation Therapy - teaching people to relax is a real key, I feel you have this covered with massage, hot springs and maybe yoga (Savasana and Yoga Nidra) and meditation/mindfulness practices. Taking people through guided relaxation to help lower cortisol levels is helpful for immune boosting. When the body is stressed the cortisol is high and the immune system is compromised and defences are low. Assisting the person to relax via breathing and guided relaxation can be helpful.
2. Alternating hot and cold therapy - Alternating the hot springs and plunge pools can be used to assist immunity. (Showers can be an alternative). Firstly, warm the body in a hot spring above 40 degrees Celsius for 5-10mins - then cool plunge pool for 5 mins. Do this for 3 rounds and then finish with hot spring at body temperature, approx. 36-37 degrees Celsius.
3. Sunbathing - Get out in the sun and get the sunlight on the skin.

4. Skin brushing - Helps the lymphatics and circulation.

Energetics - yin tonic, build kidney energy, build fluids and blood building. As they are yin tonics they can also help with – high blood pressure, cholesterol and diabetes.

Adaptogenic herbs increase the body's ability to adapt to stressors whether they be physical, mental, emotional or toxic i.e. Over work, exercise, microbial (bacteria, viral, fungal), shock, death of a relative and other major life changes.

These herbs are excellent for general fatigue (especially for those that cannot take the stimulating effects of ginseng) and can help treat- chronic fatigue, fibromyalgia, auto immune diseases, rheumatoid arthritis as well as allergies.

It is to be avoided in high fever, severe sore throats and excess damp (thick mucus) though it is beneficial in cold sweats, weakness and watery mucus (like hay fever). Astragalus and maitake mushroom increase the communication between cells because of their high levels of glyconutrients (long chain polysaccharides) thereby increasing immune intelligence.

Maitake mushroom

- Is a powerful immune stimulator mostly due to its high concentration of polysaccharides called "D-fraction" which have shown to have a significant effect on increasing immune cell numbers and activity.
- Trials have shown its effectiveness in cancer treatments, by inducing apoptosis, inhibiting growth and preventing metastasis.
- Has shown particular promise in supporting breast cancer treatment.
- The D-fraction of the maitake mushroom is excellent for treating viral and post/dormant viral infections with some very positive results in trials on hepatitis.
- Boosts both the adaptive and innate immune systems.
- Maitake mushroom supports the yin functions of the body therefore treating – high blood pressure, diabetes and cholesterol imbalances

Astragalus – The primary immune stimulator in Chinese herbal medicine.

- Strengthens immune function.
- Aids in energy and increases stamina.
- Treats chronic fatigue.
- Strengthens the body after long term stress and severe illnesses
- Excellent treatment for any chronic immune disease – rheumatoid arthritis, viral infections- Ross river fever, glandular fever.
- Increases interferon production and enhances NK and T-cell function.
- Supportive for asthma and hay fever sufferers.
- Contains immune enhancing polysaccharides which strengthen the body's resistance and invigorates and promotes tissue regeneration.
- Adaptogen.
- Promotes adrenal cortical function.
- Has been used for cancer patients as an immune supporter, allowing them to recover significantly faster and live longer.
- Ameliorates bone marrow suppression and gastrointestinal toxicity caused by chemotherapy and radiation.

Withania

Ayurvedic herb "that gives the strength of a horse".

One of the most important regenerative herbs from the ancient Vedic traditions of India and in modern herbalism has become one of the most widely used adaptogens for adrenal fatigue, stress, immune dysfunction and mood disorders.

- Increases energy/stamina and eliminates physical and mental fatigue.
- Withania's active constituents not only directly rejuvenate the adrenal glands -but also puts a stop to the vicious cycle of symptoms

of adrenal fatigue, by helping to correct adrenal function.

- Reverses stress-induced biochemical changes in the adrenal glands.
- Researchers compared the anti-stress effects of Withania against various other herbs (including ginseng) and Withania was deemed the most effective.
- Withania is one of the most effective herbs for counteracting the effects of excessive stress (the underlying cause of adrenal fatigue).
- Withania is both relaxing and energising, making it the perfect adaptogen for those who are suffering from nervous exhaustion and fatigue.
- Works as an excellent anxiolytic that is more curative than a simple relaxant as it builds and repairs the stress adaptation system.
- Aids in depression that stems from long term or intense levels of stress.
- Improves sleep quality.
- Immune building abilities have demonstrated positive effects for those with cancer increasing both life quality and longevity for cancer sufferers
- Increases the number of immune cells
- In one study on cancer patients, observations of treatment with withania showed an increase of lifespan, decrease in the number of cancer cells and tumor weight was reduced.
- Has shown significant anti-proliferative activity in human tumor producing cells.
- Has demonstrated anti-carcinogenic effects in animal studies and cell cultures by: Decreasing the expression of nuclear factor-kappaB; suppressing intercellular tumor necrosis factor, and; potentiating apoptotic signalling in cancerous cell lines.
- -Also been shown to reduce some of the side effects of chemotherapy.
- Withanoloids (active constituent in withania) consist of steroidal molecules which act to fight inflammation and have a similar anti-inflammatory action to that of cortisone.
- The anti-inflammatory properties along with immune and adaptogenic support, makes withania a useful tool in treating chronic inflammatory disorders like rheumatoid arthritis.
- Traditionally withania is considered a general rejuvenator of the body helping maintain general health and wellness.
- Augments the production of bone marrow, semen, and inhibits the aging process.
- General sexual tonic (especially for men).

Colostrum – Bovine

The first milk that is produced by the mother for 72 hours

immediately after birth.

- Rich in immunoglobulins – proteins that build the immune function.
- Bovine colostrum is four times richer in immune factors than human colostrum.
- Contains growth factors which supply the necessary building blocks for enhancing the growth of cells, muscles, tissue, bone and cartilage. As we age, our bodies produce less and less of these vital factors, increasing signs of aging, and making it more difficult for us to fight disease.
- The majority of disease and illness begins in the gastrointestinal tract.
- Pathogens (viruses, bacteria, yeast, and fungus) enter the body through our nose, ears, and mouth and can attach themselves to the lining of the bowel. Colostrum helps inhibit the binding of these pathogens to the bowel lining, so they are unable to proliferate.

Part Two: General suggestions and advices

Federterme

The Federterme General Council, which met in Rome on February 24, 2020, conscious of the complex situation following the Coronavirus epidemic outbreak taking place in the Country; considered that no COVID-19 infection episode happened in thermal structures; considered that the spas are health facilities under medical surveillance and, as such, they have promptly implemented all the necessary preventive measures to protect the guests and the employees, being potentially able to represent important outposts of primary prevention; considered the recommendations issued by the World Health Organisation (WHO), the decrees of the Italian Ministry of Health and the decrees of the local health authorities aimed at containing the risks of epidemic spreading; considered the nature of balneotherapies, of the thermal means and the most frequent type of patients; heard the Scientific Coordinator of FoRST, Foundation for Thermal Scientific Research, Prof. Marco Vitale; deliberates to recommend to the associated spas operating in Italy, in the absence of different definitive indications issued by the institutions concerning the applicability of the above-mentioned decrees to the spas, to comply with the following prescriptions by notifying them to the local health authorities, especially for those activities that involve a significant concentration of users, considering however these indications as additional to the directives issued or that will be issued by national and local authorities:

- Logistic reconsideration of waiting rooms, outpatient planning for individual therapies and swimming pools, aimed at minimising contacts between individuals;
- Anamnestic deepening on acceptance visit for respiratory pathologies and recent movements in areas at risk of contagion;
- Adequate training of the staff;
- Temporary suspension of collective inhalation treatments (nebulisations and pulverisations); assessment by the spa Health Director of any suspension of activities in non-isolated areas with aerosol/nebulisation production, based on the structural characteristics of the department and the turnout of patients;
- Logistic reconsideration of individual therapies (e.g. baths and muds, rehabilitation) with implementation of all precautionary measures in the staff/patient contact.

It is also recommended to expose the following rules, clearly visible to patients, employees, caregivers and anyone in the establishments:

- Do not drink from the same bottle / glass, always using disposable glasses or a nominal or personalised bottle, and do not exchange items with others (towels, bathrobes, etc.);
- Avoid consuming food in common or not specifically-designed areas;
- Store personal items and clothing in your bags;
- Immediate disposal of paper tissues or other used materials (plasters, bandages, etc.) in the appropriate containers;
- Wash your hands thoroughly as often as possible. Hand washing and disinfection are decisive to prevent infection. Hands should be washed with soap and water for at least 40 seconds and then, after rinsing them thoroughly, they should be dried with a disposable towel or using the appropriate electric towels;
- Disinfect hands with virucidal antiseptic gel (e.g. 60% alcohol-based hand disinfectants);
- Do not touch your eyes, nose or mouth with unwashed hands.
- Cover your mouth and nose with a tissue - preferably disposable - or with your arm, but not with your hand, if you cough or sneeze.
- Air the premises as often as possible;
- Periodically disinfect tables, furniture, floors, taps, showers and toilets with disinfectant solutions based on bleach or chlorine, solvents, 75% ethanol;
- Invite people who experience symptoms of an ongoing respiratory infection and/or fever to stop treatment or work and leave the premises immediately and notify the medical manager or call the toll free number 1500 of the Ministry of Health operating 24 hours a day.

Federterme believes that the re-opening of the thermal pools may be possible, complying with the following prescriptions, that are meant as additional to those already dictated by the competent authorities:

- Submit all persons entering the pools to a preliminary medical evaluation specific for their potential (respiratory) infectious risk;
- Reconsider the logistics of the changing rooms, as to have a very small number of contemporary presences in the same environment. The number of people will be determined by the Medical Director of the facility, based on the structural characteristics of the environments;
- Carry out a suitable disinfection of the rooms every hour;
- In the respect of the recommendations of the Ministry of Health to maintain a distance of at least 1.5 metres from

other people, to admit at the same time to the pool a number of people such as to guarantee a distance of at least 2 metres between them; this number of people will be determined by the Medical Director based on the structural characteristics of the pool;

- Instruct all swimmers to comply with these rules;
- Ensure continuous monitoring of bathers aimed at compliance with the rules

Enhancing immunity through good health

Anne Warren

Ya-idt'mitung Elder, educator and custodian.

Aboriginal Elder

According to many of Aboriginal Australia's unique cultural beliefs of maintaining and achieving good health and wellbeing, there is continuing understanding that certain factors are integral to this. The Ya-idt'mitung community from the mountainous regions of South Eastern Australia follow a way of "conscious wellness" based on our physical, emotional, mental, social and Spiritual selves.

Treating just one aspect is difficult if whole being wellness is acknowledged as we believe that all aspects of one's being reflect on and influence each other.

Therefore it is impossible to just treat one part of oneself, when diagnosing and treating an ailment or malady.

Our belief of "Aildt" means "all is one, connected and a part of each other and all there is", our physical body reflects nature, our mind and emotions interpret our environment and our environment stimulates and encourages growth of our Spiritual selves.

Certain factors are essential to our abilities to "be well" and to strengthen our central nervous system, immune system, glands, bones, organs, muscles, blood system and mental functioning.

These being:

- Sunlight
- Moonlight
- Diet high in natural vitamins and minerals including fruits, vegetables, (Australia has some of the highest levels of vitamins, minerals and proteins in our foods, specifically Vitamin C), whole foods, organic, fresh and in season.
- Regular bathing in mineral rich springs, rivers, oceans and lakes.
- Abundant daily supply of Vitamin C through fruits, vegetables and plants and fresh water.
- Utilising all our senses in specific practices such as

regular and frequent deep breathing, meditation or quiet contemplation, absorbing and connecting with nature often, planting a garden, trees, vegetables to sustain our body, mind and Soul.

- Finding ways to stress less.

All these help to strengthen our whole system to fight off disease and encourage shining good health.

Useful links for industry

Andrina Romano

Past General Manager

Queen Elizabeth Hospital (QE Health), Rotorua, New Zealand

Suggested scientific references and functional mechanism of using hot springs to improve human immunity, including any related research papers:

International journal of molecular sciences

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6032246/>

[https://www.researchgate.net/publication/263099537_](https://www.researchgate.net/publication/263099537_Scientific_Evidence-Based_Effects_of_Hydrotherapy_on_Various_Systems_of_the_Body)

[Scientific_Evidence-Based_Effects_of_Hydrotherapy_on_Various_Systems_of_the_Body](https://www.researchgate.net/publication/263099537_Scientific_Evidence-Based_Effects_of_Hydrotherapy_on_Various_Systems_of_the_Body)

Immunity boosting info

<https://www.health.harvard.edu/staying-healthy/how-to-boost-your-immune-system>

Other useful links

<https://www.heartmath.org/research/research-library/abstracts/music-and-the-immune-system/>

Research papers linking immunity and hot springs bathing (submitted by Denise Hung, TCM Student, Southern School of Natural Therapy, Melbourne)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6032246/>

https://www.scirp.org/html/4-1410090_40695.htm

<https://pdfs.semanticscholar.org/14b8/32cd7b2bbc631b0af9ee8e83edc8e6e296c7.pdf>



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- * Srámek P, Simecková M, Janský L, Savlíková J, Vybíral S. Human physiological responses to immersion into water of different temperatures. *Eur J Appl Physiol.* 2000;81:436-42. [PubMed: 10751106]
- Resources:
- * The Science Behind the Wim Hof Method <https://www.wimhofmethod.com/science>
- * Yoga and Immune System Function <https://www.ncbi.nlm.nih.gov/pubmed/29429046>
- * The Science of Breathing and Immune Function <https://www.thebreatheffect.com/immune-system-breathing-techniques/>
- * Study proves exercise boosts immune system <https://www.abc.net.au/science/articles/2010/11/02/30.htm>
- * Vitamin C Protects Against Coronavirus <http://orthomolecular.org/resources/omns/v16n04.shtml>
- * 20 Foods That Are High in Vitamin C <https://www.healthline.com/nutrition/vitamin-c-foods>
- * The compelling link between physical activity and the body's defence system <https://www.sciencedirect.com/science/article/>
- * Singing modulates mood, stress, cortisol, cytokine and neuropeptide activity <https://ecancer.org/en/journal/article/631-singing-in/>
- * The Neurochemistry of Music <http://www.downloads.imune.net/medicalbooks/Neurochemistry%20music.pdf>
- * Effects of Singing Bowl Sound Meditation on Mood, Tension, and Well-being <https://www.ncbi.nlm.nih.gov/>
- * 12 Science Based Benefits of Meditation <https://www.healthline.com/nutrition/12-benefits-of-meditation>
- * Earthing: Health Implications of Reconnecting the Human Body to the Earth's Surface Electrons <http://www.ncbi.nlm.nih.gov/mc/articles/PMC3265077/>
- * Short Sleepers Are Four Times More Likely to Catch a Cold <http://www.ucsf.edu/news/2015/08/131411/shortsleepers-are-four-times-more-likely-catch-cold>
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