CHAPTER 6

THE PHYSIOLOGY OF WARMTH

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"We must succeed in enveloping the tumor with a mantle of warmth... we must be sure that in every case a preparation of viscum (mistletoe), applied in the way we advise... will generate a mantle of warmth." —RUDOLF STEINER

Steiner's words offer a key insight as to why mistletoe preparations provide unique support in cancer therapy.[1] You do not hear many people talking about being given a prescription for a "mantle of warmth" by their doctor! It sounds unusual, maybe even a little sentimental, like someone sending you warm greetings or a warm hug—but that would be only a superficial understanding of Rudolf Steiner's indication about mistletoe therapy. It's really an invitation to learn more about what anthroposophy calls our whole *warmth organization*. This is an important bridge toward whole-person healing.

> *Warmth Organization:* The different aspects of heat and warmth in the human being as an organized whole, including distribution of heat within the body, thermosensation and the feeling of physical and emotional warmth.

Oncologic care in the U.S. typically makes distinctions between what are considered standard of care (SOC) medical treatments (like surgery, chemotherapy, and radiation) and then a separate group that

includes all the other less-easily controlled or more individualized parts of care. When comparing the two aspects of treatment, objective, physical measures are usually given the greatest priority. Scans and biopsies are "king." This means that the parts of you which can be easily X-rayed, biopsied, or measured with a blood test get the most attention. Those aspects certainly offer important insights, but alone, they provide an incomplete picture. We are more than just the combined sum of our imaging results and tumor markers; more than a machine with broken parts. Healing needs to involve not only physical measures, but also functional, emotional, and spiritual factors. We will describe what that expanded picture can look like and how it contributes to a more holistic view of illness and healing.

To do that, let's go back to our clue in the Steiner quotation above. If warmth is an important part of healing a tumor, then we should look with fresh eyes to see how warmth can be observed and assessed.

When you go to a medical appointment, how do people measure your warmth? The obvious answer is with a thermometer, usually on the head. We can make that measurement very quickly to see if the temperature is normal or abnormal. But if we are experimenting with the idea that warmth can actually be a therapeutic "substance," then we should not only ask whether the temperature is normal, but more broadly, "Does this person have *enough* warmth?" We tend to think about a temperature being abnormal only if it is elevated, since a higher temperature can be a sign of infection or inflammation. But maybe we should also begin to think about the possibility of a *deficit of warmth.*

The definition of a "normal" temperature has been 98.6°F (37°C) for decades, but a surprising study shows us that our warmth is not, in fact, a static measure. That guideline for normal body temperature was set more than a century ago, and it is no longer true. That's because the average body temperature of people living in the United States has been steadily decreasing over the last 150 years. A research study titled "Decreasing human body temperature in the United States since the Industrial Revolution" looked at three very large

collections of medical records, gathered from 1860 to 1940, 1971 to 1975, and 2007 to 2017. Through comparing those records, researchers determined that the average body temperature has decreased by about 0.05 degrees Fahrenheit (0.03 degrees Celsius) every ten years, since 1860.[2] The progressive decrease in body temperature has been true for both women and men (though women tend to have a slightly higher average temperature). The decrease is also consistent for both black patients and white patients (the only races observed in the Civil War study). Perhaps the most important finding is that today's average body temperature is now approximately 97.9 Fahrenheit (36.6 Celsius) according to a 2017 British study,[3] far lower than what has, until recently, been considered "normal."

As previously mentioned, most medical care focuses on those aspects of health that can be most easily measured and analyzed with statistics. So, some of the first reactions to this study went along the lines of: "Were their thermometers accurate 150 years ago?" and "Did they really keep good records?" Also, "Did they measure big enough groups of people to really be able to make such generalizations?" Those questions about reproducibility, accuracy, and statistical significance are good ones. We need to make sure that the basic facts are true so that we feel confident in the quality of measurements we use to make decisions.

The researchers who carried out this study looked hard at those factors, considered the accuracy of the type of thermometers used more than a century ago, and determined that the shift in average body temperature does, in fact, seem to be true and accurate. Our warmth has been steadily decreasing, and it is very important to think about that fact if *enhanced warmth* is something we should be using in cancer care.

Now, there is more to this story. The researchers took a second step, an important one. They asked at what time of day the temperatures were taken. Why focus on such a little detail? The answer is because our temperature will actually be different in the evening than it was in the morning, even when we are not sick. Warmth fluctuates throughout

the day. Body warmth rises and falls so that our body temperature goes up an average of 1.08 degrees Fahrenheit (0.6 degrees Celsius) from early morning hours (when we are still asleep) to the mid-afternoon, when we are most alert and warmest.[4,5] That fluctuation means that the researchers did need to account for the time of day when a temperature was taken. Indeed, even accounting for that variation, the authors still found that our temperature has been decreasing over the last century. These combined studies show us that warmth is dynamic, shifting not only over the course of a day, but also over the course of multiple generations.

Once we recognize that warmth moves and changes, almost like the rise and fall of tides in the ocean, that can also prompt us to think about fever in a different way. Fever is typically categorized as a symptom of illness. But what if we think about the warmth of fever as potentially also being a healing substance? If that concept were true, then we would expect to find research demonstrating medical benefits from fever. That research is not hard to find. The American Academy of Pediatrics states in their guidelines on *Fever and Antipyretic Use in Children* that: "Many parents administer antipyretics [fever reducers] even when there is minimal or no fever, because they are concerned that the child must maintain a 'normal' temperature. Fever, however, is not the primary illness but is a physiologic mechanism that has beneficial effects in fighting infection."[6] The guidelines describe different ways that fever helps the immune system and maintain that, instead of routinely suppressing fever, allowing the body to produce an elevated temperature actually "retards the growth and reproduction of bacteria and viruses, enhances neutrophil production and T-lymphocyte proliferation... [and] helps the body recover more quickly from viral infections."[7] Suddenly we are gaining evidence that fever, as a warmth tool of the immune system, has direct therapeutic effects.

Anthroposophic practitioners have long worked with and supported the dynamics and effects of warmth when caring for illness. Multiple generations of doctors and patients have confirmed that

we may not only passively allow a temperature to rise (as part of the body's immune response to an infection), but that we can also actively *work with* that desired warmth instead of solely fighting it. In the early stages of a fever, when someone looks pale, feels chilled, achy, and uncomfortable, the immune system will soon be working hard to make the whole body warm—from head to feet. If we recognize this pattern, we can aid the process by providing warm clothing and blankets, warm drinks, even putting a hot water bottle on the feet. We don't need to give fever-reducing medicines at this stage; we certainly don't put someone in an ice bath. *Rather we observe what the body is trying to do and actively support it.* Then, once a fever has really built up, and the body is completely warmed through, we can watch for the shift when the body decides it needs to release warmth and move it away from the head. That can be done with simple things like warm compresses of diluted lemon juice placed on the calves. This kind of treatment aids the release of warmth through evaporation, even though the calf compresses are administered underneath blankets.[8] Antipyretics can, of course, still be used when they are needed, but they become more the exception than the rule. Simple, natural tools and a dynamic view of warmth create a whole new field of therapeutic thought.

Does that natural supportive approach work, and is it worthwhile? The answer is yes. A large study of anthroposophic medical treatments for acute respiratory and ear infections (treatment for which also included the prescription of a variety of natural medicines) showed that, for patients receiving conventional medical treatment, about 26 percent were prescribed an antibiotic, whereas patients seeing an anthroposophic physician received an antibiotic prescription only about 5 percent of the time.[9] That is more than an 80 percent reduction in antibiotic use. Not only were fewer antibiotics used, but the patients also needed fewer analgesics (pain reducers) and antipyretics (fever reducers), and patients had a "somewhat quicker short-term resolution" of their symptoms—meaning they felt better slightly sooner than patients receiving conventional care.

Expanding our understanding of warmth organization by defining the "fourfold human being"

The studies we've just looked at show that we can, with practical steps, enlarge our concept of medical care. That kind of enlarged therapeutic toolbox doesn't hurt. It doesn't compromise medical decision-making. Far from it—it helps. But to include these factors we have to start thinking more flexibly, more dynamically. In conventional care, we often look at warmth as a value that should be kept within a fixed range. Instead, we could think about tides and transitions of warming and cooling. We need to move from relying solely on "facts" to also considering "flow."

That kind of thinking might feel revolutionary, but it has actually been part of medicine for thousands of years. The ancient Greeks spoke about medicine on four levels, the first two being "earth" and "water." While we tend to dismiss their observations as simplistic and naive, they taught about a kind of medical thinking that can consider both measurements and *dynamics*. We are less adept at that now. We need to strengthen our capacities for observing how our physiology moves and changes in time, and how working in harmony with those dynamics can enhance our regeneration and recovery.

Flow	When?	Dynamics of Change	Fluidity	Plant	Time/Recovery Forces
Facts	What?	Measurements	Anatomy	Mineral	Physical/Structural Forces

Table 6.1: Developing a more dynamic medical view—facts vs. flow

The study discussed at the end of the previous section did not achieve such a dramatic shift in antibiotic prescriptions simply because physicians allowed a fever to rise and fall. Doctors also used a number of natural medicines, understanding that many of the processes that happen in the human body also find a related kind of expression in the natural world. In terms of warmth, our body moves back and forth between building and holding warmth, then distributing and releasing warmth. The natural world, in contrast, shows examples where just one part of that process finds very strong expression. As an example,

some plants love warmth. They grow most joyfully in warm climates where there is lots of sun and heat over a long growing season. These plants take in as much warmth as they can; they are wide open to it and actually do not thrive in colder climates because they are so wide open to the environment. We are familiar with many of these plants because of the fragrant oils they produce, often used as spices and natural remedies. This is a task these plants excel at: taking in the heat of sunshine and internalizing that energy within a dense oil. Biochemically, oils are calorie-dense; they help us create our own warmth when we need it. A good example of this kind of heat-loving plant is rosemary (*Rosmarinus officinalis*).

Yet, there are other plants that thrive in very different conditions, plants that grow and survive for many years in cold, wet, chilled conditions. Those plants have a different task. They cannot rely on outer sunshine for all the warmth that they need. They must somehow protect themselves from the outside and create an inner space that will not be overwhelmed by surrounding conditions. They must create and hold their own, inner, stable warmth. A good example of that kind of plant is peat moss (*Solum uliginosum),* which grows on the cold and rainy moors in Scotland. Peat moss works with warmth in a very different way from rosemary.

Each of these plants does, in fact, have a special relationship to warmth. They produce specific phytochemicals and develop unique botanical structures as part of their work to collect or maintain warmth. The sum total of these constituents and structures reveals a kind of signature, a unique gesture, displaying that plant's attitude and interaction with warmth. Let's look at some examples of how this kind of thinking can be applied therapeutically.

In the medical condition known as Raynaud's phenomenon, people get very cold extremities because their arteries tend to clamp down and spasm. Blood flow becomes limited. Raynaud's is particularly common in people who have scleroderma, a chronic connective tissue disease with an overall hardening of tissues in the body. But when an oil containing rosemary extract gets massaged over such a person's arm,

circulation immediately improves. The clamped-down arteries relax, and you can see how warmth flows through the hands and fingers. You can actually see it occur when you take thermal images![10] So, when someone needs warmth to fill a part of the body that has become too hardened or too fixed—when they need a process of filling, opening warmth—rosemary can be helpful.

But what about when someone is having pain and inflammation, maybe pain that is strongly influenced by outside shifts like the change in barometric pressure that happens before a storm? There we need something different. We don't want to add more warmth if things are already painful and inflamed. Rosemary would be too much, too aggressive. In this case, we would instead make use of peat moss, *Solum*, which does, indeed, prove to be very helpful. Massage with *Solum* oil has been shown to reduce chronic pain.[11] *Solum* helps provide a sheathing, protecting kind of warmth.

Many medical traditions have been doing this for millennia—observing a gesture or archetype of a plant and then using it for an associated therapeutic benefit. In the conventional mindset, we often regard such thinking as imprecise and primitive. But time and again, modern science finds that such early scientific hypotheses were not far off. We learn that a heat-loving plant does indeed contain active components that produce a warmth response in the human organism.

These gestures, or archetypes of a particular kind of process, not only occur in the body, they also happen in our feelings, in our soul life. Sometimes we need a wave of warmth to fill us, loosen us, and relax and open up what has become stuck and hardened. Other times, we just need gentle sheltering; we don't want anything more from the outside. We need to be able to hold and protect what is our own. As part of whole-person cancer support, we can think about rosemary being helpful for tissue that has become scarred, feels wooden-like, or is numbed and cooled as a side effect from chemotherapy; we can think about *Solum* as being helpful for pain or difficulty in regulating one's own warmth after radiation.

Now, it's important to notice that we have just taken a step into a third realm, a realm of differentiated qualities and gestures. This third level is not something we easily X-ray or measure on a blood test. It is also not something we will understand just by watching how things change over time. To enter the realm of "qualities" we have to know something about a person's experience—how do you feel? We have to look for parallel expressions of process and understand how an activity in the human body finds its companion in the natural world. We might ask: Is something happening in the body that has a parallel in the patient's soul life? We begin to regularly observe how these differentiated processes show up on both a physiologic level (such as a blunted dynamic of circulation and warmth) and an emotional level (like a loss of trust or a stuck social dynamic that won't budge).

The ancient Greek physicians talked about this level as the element of "air." This makes a certain sense because we find this third aspect of combined physiologic and emotional expression in creatures that actively breath in and out. Let's make that very concrete: a stone has physical shape, density, size, color—measurable aspects, but no awareness, no breath. It does not have the third element of "air." A plant is a little more complex. Plants also have physical shape, density, color, and size, but they also grow and change in time. They sprout, flower, and reproduce, through cycles of life. Certainly, a plant has something more than a stone, but still not the same "wakefulness" as a creature that freely moves and quickly reacts. To find that level of awareness we must look to the animal world. Animals have all three: shape/size/color, growth/dynamics/change in time, and wakefulness/respiration/emotion. Human beings have these three levels too (plus one more, which we will consider next). Anthroposophic medicine (AM) recognizes that we can see the difference between these three levels by observing:

Measurable, physical qualities and structures: We can see this isolated level in a human (free from any of the other aspects) only in a corpse.

Growing, healing, regenerative capacities: These work quietly when we are in a deep sleep, without movement or awareness.

The wakeful processes of breath, emotion, and interaction: This is the realm of many of our basic activities of day-to-day life.

Qualities	How?	Gestures & Archetypes	Awareness	Animal	A wakeful person
Flow	When?	Dynamics of Change	Fluidity	Plant	A sleeping person
Facts	What?	Measurements	Anatomy	Mineral	A corpse

Table 6.2: A third layer of dynamism—facts, flow, and qualities

To get to the fourth quality we have to really expand our mind and our heart. We need to look at all parts of our humanity. How is a human different from an animal? Animals sense, move, and react with instinctive wisdom. They exemplify specialized skills: a hawk flies, a dolphin swims, a badger digs, and a lion hunts. That is what they do, and they excel at it. Humans have learned to do all those things too but aided by developing techniques and tools. A human being is not specialized for any of those tasks, yet can choose to participate in all of them. People choose and refine their activities in the world, through contemplation, self-reflection, and evaluation. There is a fourth level of medical care that relates to these higher states of meaning, morality, and self-identity, which is not fixed but continuously evolves.

Rudolf Steiner, PhD, the Austrian philosopher, scientist, and teacher—who spoke about that "mantle of warmth" that mistletoe therapy creates around a tumor—really challenged the medical community to embrace this fourth realm. He pointed out how it needs to be part of all our medical thinking, not just an afterthought. We should develop ways of thinking and observing so that we can move between physical measures and spiritual meaning, between temperature warmth and warmth of heart. If we can do that, then we will develop a relationship to what is best described as a whole "warmth organization." He spoke to a group of young medical students about this in the following way:

> You find a great gulf within you, over which you must find the bridge. You must find the bridge from the medical-scientific to the moral, to the loving. You see, when I speak, for example, of what

> I call the warmth organization of the human being, for you it is initially an abstraction. But you must find the bridge to experience this warmth organization in such a way that you find your way from the experience of the warmth differentiations of the individual organs to moral warmth.
>
> You will have to experience what is called 'heart warmth' in such a way that you will feel this warm heart right into the physical. You will have to find the way from the scientific-physiological to the spiritual-moral, and from the spiritual-moral to the physiological-anatomical.[12]

That process, of bridging "spiritual-moral" to "physiological–anatomical" feels like a lofty goal, but again, if we look carefully, it is not so far away. Let's look at some more published studies.

An intriguing examination of warmth involved college students on several campuses who were asked to evaluate the personality of another person (someone who had been videotaped during an interview).[13] What the students did not know is that the research aspect already began when they were greeted in the lobby of the building by a study coordinator, who escorted them on an elevator up to the place where the interviews were being held. Here is their fascinating study method: while riding the elevator, the study coordinator always asked the student to hold the coordinator's coffee cup, which was predetermined to be either hot coffee or iced coffee. *Holding a cup of hot or iced coffee during a short elevator ride*—that was the study intervention. The rest of the process was exactly the same. What they found was that "people who had briefly held the hot coffee cup perceived the target person as being significantly [interpersonally] warmer." A second part of the research asked study participants to examine and rate either a hot or cool therapeutic pad. Then, at the end of the session, participants were offered an immediate gift for themselves (a beverage) or a coupon to later "treat a friend" to some ice cream. Those who had examined the warm therapeutic pads were more likely to choose the gift coupon for a friend. Experiences of physical warmth and cold influence how much we see the good in another person and how generously we act. This

shows a real bridge between "physical warmth" and a "warm heart." We can perceive another person differently through the activity of our personal "warmth organization."

We are aided in that process by experiences of outside warmth, but we also change our own warmth organization when we become more interested in another person, when we are "fired" by enthusiasm, when we "warmly invite" someone into greater social connection. Such warmth changes may be subtle (hard to measure with a simple thermometer check), but they are real. Self-directed, self-engendered warmth supports us on a path of deeper connection and understanding of the outside world.

We can know ourselves better, too, through self-engendered warmth. The importance of warmth as a tool of the immune system has already been described. Our bodies create fever because better warmth fosters better immune function. But warmth also plays a developmental role. We will look at one more study to round out our survey of warmth.

A study of children with autism spectrum disorders found that, during fever, these children exhibited "fewer aberrant behaviors...on the Aberrant Behavior Checklist subscales of irritability, hyperactivity, stereotypy, and inappropriate speech compared with control subjects."[14] This was true not only while the children had an elevated temperature, but also when behaviors were rated again by the child's parents seven days after the fever had finished. Children with an autism spectrum disorder usually become more irritable and hyperactive when they are uncomfortable and turn to anchoring behaviors like hand flapping or repetitive speech patterns as a way to orient and anchor themselves. This study suggests that with an experience of very strong warmth (fever), the children felt different. We can hypothesize that the reason they behaved differently was because they felt more comfortable in themselves, felt more comfortable in their bodies.

This fourth level of warmth has not only to do with morality (seeing goodness in others), and with self-awareness (how do I sense and feel myself), but also core aspects of meaning. It's a level of growth and development—not physical growth and regeneration, but spiritual

change. It is not surprising that the Greeks referred to this level as the element of fire. This is the level where we learn to better know ourselves and gain a greater, truer sense of self.

Meaning	Why?	Development	Self-Awareness	Human	A self-actualizing person
Qualities	How?	Gestures	Awareness	Animal	A wakeful person
Flow	When?	Dynamics	Fluidity	Plant	A sleeping person
Facts	What?	Measurements	Anatomy	Mineral	A corpse

Table 6.3: A Fourth and culminating reality

There is always a little bit of mystery with this fourth level, as the spiritual is so completely individual. In AM, that aspect is known simply as the "I" because we can really say "I" only about ourselves; we cannot say it, or easily know it, for another person. This level, and the three preceding levels, are not so easy to describe in everyday language. So, within the practice of AM, four unique terms are used to designate these four levels of being. Drawing from the table that we've developed so far, the anthroposophic version would look like this:

"I"	Self-awareness. Formative forces of the human **spirit**.	Why/Who?
Astral	Emotion and sensation. Formative **soul** forces.	How?
Etheric	Growth and Regeneration. Formative **life** forces.	When?
Physical	Physical properties. **Substance** and measure.	What?

Table 6.4: The anthroposophic fourfold human being

If physical factors are answered with the question "What?" and dynamic, etheric forces with the question "When?" then astral and "I" aspects come into view with the qualitative question of "How?" and, finally, the meaning-oriented questions: "Why is this happening?" as well as "Who am I trying to become?"

A core part of our human experience is our capacity to be self-reflective. We question if we are doing the right thing. We want goodness and kindness to be part of our healing path. A doctor can't, however, write you a prescription for this fourth level. There are no "milligram" designations for meaning and morality because they need to be sensed

and developed from the inside. This is the realm of self-engendered activity, of self-engendered warmth, of self-engendered change. It cannot be quantitatively prescribed, but having this aspect acknowledged, supported, and companioned by those around us makes the pathway easier and more meaningful.

Mistletoe and the fourfold human: Beginning to understand the multilevel effects

These four "organizations" offer a comprehensive, yet individualized pathway for healing. It may not seem possible to address these diverse aspects of our humanity all at once, in one snapshot, one PET scan, one visit—because we can't. This is not about just following a standard protocol. Working to make lasting transformations takes time. Here are four major ingredients we need to focus on:

1. We must affirm that we are more than a diagnosis, more than a biopsy, more than a tumor marker level. We are more than just the physical measurements of disease.
2. Just as our temperature rises and falls each day, we also need to work in a rhythmic, breathing manner to stimulate healthy warmth. Mistletoe treatments help tremendously with that process, stimulating us to build up strong warmth, then letting it balance out—stimulating inflammation, then letting it resolve. Each "in-breath" and "out-breath" of cyclic warmth brings change. We need to appreciate and work with etheric dynamics of warmth and see that they are, in fact, part of a living process.
3. Just as there are many types of illness, so too there are many kinds of healing support. A multi-dimensional toolbox should be encouraged, simply because it works better. We build a comprehensive view: Where are we out of balance, where do we find stuck patterns, and how can we reeducate those patterns? Physiology and emotion flow into one another, which means we can heal from both sides (physical health makes us feel better, feeling better makes us healthier with stronger immunity). We can and should heal from both

sides, body and soul. We can address this astral realm of healing gestures with natural medicines, artistic therapies, body therapies, nursing treatments, counselling—a whole community of support. These aspects not only enrich our therapeutic toolbox, they also allow us to participate, in an active way, in our own healing process.

4. Maybe this really should be first: we must consider who is on this journey. Am I a diagnosis (such as "triple-negative breast cancer") with a name, or am I a unique human being going through the process of living with a cancer? How have I changed in this process? Who am I now? What is my truth? Even when someone goes into remission and is told to go back to "normal" life, that is an illusion based only on the world of facts and physical measures. For while life might outwardly look the same, inwardly it will be quite different. To preserve this fourth level, we need to not give away too much of ourselves. We need to not give away too much of our warmth to fear. Fear takes away warmth. Gratitude, trust, and love are its antidote.

By looking at all these research studies, we can see that working with a tumor should involve cultivation of our whole "warmth organism." Building a "mantle of warmth" around a tumor is not just about a temperature measurement. It is not just a kind sentiment. It is about whole person healing that supports us on the levels of facts, flow, qualities, and meaning; on the levels of the physical, etheric, astral, and "I"-organizations.

A cancer develops because some part of our body has fallen out of the whole. Tissue that no longer follows healthy physiologic patterns begins to grow. It manages to evade the attention and intervention of the immune system. When tumors grow, they are *in* us, but no longer truly part *of* us. Warmth—on physical, functional, emotional, and developmental levels—aids reintegration. It is no coincidence that we've seen a decrease in average body temperature over the same time period that we've seen increasing cancer rates. *They are two expressions of a common shift, a kind of splintering of health.* They stem from an

increasingly disorganized immune response and distracted sense of self, of "I." Both are strengthened through support of the *warmth organization*. Mistletoe, as a warming therapy, enhances immune activity around the tumor, while also enhancing a level of spiritual warmth and "I" organization. It's one of the unique side benefits of mistletoe therapy. Patients often express an inexplicable increase in their sense of purpose and spiritual clarity, part of an overall improvement in quality of life. This is a sign of VAE enhancing and modulating warmth cycles, on the etheric, astral, and "I" levels. The next chapter will unfold and explore the nuances of these complex whole-person effects.