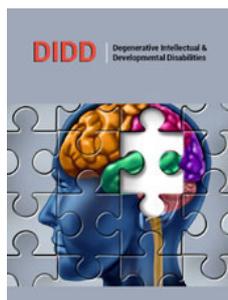


How Time Heals: The 4 Stages of Transformation and Emotional Resiliency

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Abstract

There is an adage that says, “Time heals all things.” We are asked to accept this on faith rather than using science as a guide. We live in ever vacillating internal waves of consciousness from before birth until our last breath. These waves are facilitated by the science of time, Chronobiology [1,2], the biological rhythms underlying oscillating chains of events which recur in a regular temporal sequence and persist internally in the absence of environmental input [3]. We review how the 4-stage Creative Cycle imbedded within the Chronobiology of ultradian rhythms can effectively harness these robust biological healing rhythms. Through understanding natural chronobiological ultradian rhythms and applying the 4-Stage Creative Cycle [1,2,4-11] a balance emerges between excitation/arousal and rest/rejuvenation that can facilitate health and happiness and open new abilities for adapting, learning and developing creative zests for life. These inner states of peace and clarity allow the brain to cope more effectively with intellectual disabilities to mitigate trauma, loss and grief. When signals for arousal or rest are ignored, stress, disruption and malfunction can result making it difficult or impossible to adapt to new incoming stimuli to create effective and resilient change. Is it possible to harness time for optimal healing for transformation and emotional resiliency? The answer lies within How Time Heals.

Keywords: Psychosocial Genomics; Chronobiology; Ultradian Rhythms; 4-Stage Creative Cycle and Basic-Rest-Activity Cycle (BRAC); Nicotinamide Adenine Dinucleotide; Longevity gene

Daily and Hourly Ultradian Healing Rhythms

Charles Darwin (1809-1882) [12] saw evolution not only as occurring over eons of time but also noted daily and hourly opportunities for growth with each variation and adaptation leading to healing. “It may be said that natural selection is a daily and hourly scrutinizing, throughout the world, every variation, even the slightest; rejecting that which is bad, preserving and adding up all that is good; silently and insensibly working, wherever and whenever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic conditions of life” [12].

Ultradian rhythms are a subset of oscillating chains of events which recur in a regular temporal sequence and persist internally in the absence of environmental input within the circadian 24-hour biological clock cycle [3]. Each robust ultradian lasts between 45 minutes to 3 hours but are typically ~90-120 minutes throughout the day and night. When creative genius, Albert Einstein, was asked how he would save the world in one hour (one ultradian rhythm), he replied, “I would spend 55 minutes defining the problem and five minutes solving it!” [13]. After this robust work of saving the world, certainly Einstein must have had a well-deserved rest for at least 20 minutes. Contained within ultradian rhythms are stages of arousal and relaxation that signal the body/mind to go to work to get something done and then have a well-deserved rest. All of this is experienced through the 4-Stage Creative Cycle, noted by Nathaniel Kleitman [14] as the Basic-Rest-Activity Cycle. Much has been discovered post Kleitman about what underlies these cycles all the way down to quantum and genomic levels [15-17].

Interestingly, a set of genes spurs on longevity through metabolism. Sirtuin 1 (SIRT1), or silent information regulator sirtuin 1, is a Nicotinamide Adenine Dinucleotide (NAD⁺)-

dependent deacetylase that acts as a key metabolic sensor regulating cellular stress, aging, inflammation and metabolism. It is often referred to as a “longevity gene” due to its role in extending lifespan, promoting DNA repair and protecting against diseases like cancer, diabetes and neurodegeneration [18]. This is one of many genes that may be turned on in the 4-Stage Creative Process.

Figure 1 illustrates the wave nature of the 4-Stage (Sage) Creative cycle. During the course of each ultradian there is an arousal followed by a relaxation phase in everyday life 12 times a day, 84 times a week. Individual genes are turned on and off creating the building blocks of proteins to sustain life. All remains in homeostasis unless there is a perturbation: a spark of creativity or a stressful event. We can thank the sage mathematician, Henri Poincaré for his research to differentiate between the problem of determinism and the problem of predictability being distinct

problems and distinct conditions. In his research on the three-body problem he became the first person to discover a chaotic deterministic system and subsequently Poincaré found that the evolution of such a system is often chaotic in the sense that a small perturbation in the initial state, such as a slight change in one body’s initial position, might lead to a radically different later state than would be produced by the unperturbed system [19].

It is these shifts within the 4-stage Creative Cycle that give opportunity for new learning and discoveries to become a better functioning person as a result of initial small perturbations that open opportunity to resolve physical and psychological problems. This is particularly important for those with intellectual disabilities to gain confidence to learn and overcome obstacles life sets before them.

4-Sage (Stage) Creative Cycle is the BRAC

Darwin’s Daily & Hourly Dharma ☯ Buddha’s 4 Noble Truths

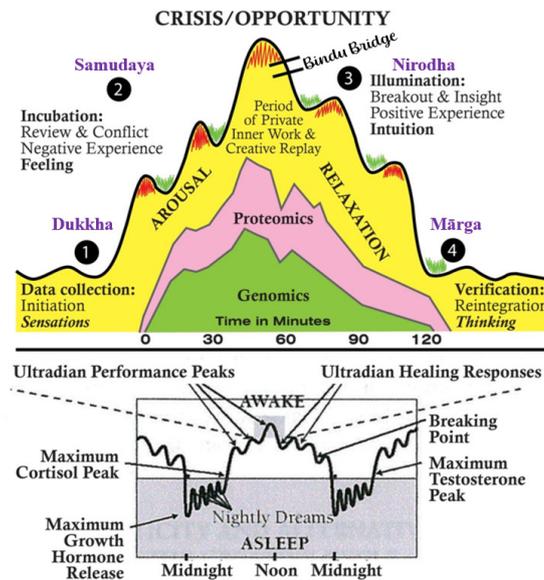


Figure 1: ©Kathryn Rossi shows the peaks and valleys of the Ultradian cycle throughout the day and night that can be characterized by Darwin’s daily and hourly dharma. It is fascinating to learn that Charles Darwin saw evolution not only through many lifetimes but that it is daily and hourly too. A profile of the 4-stage creative process attributed to Henri Poincaré [17] as a basic paradigm of our RNA/DNA psychosocial genomic theory of mind/body stress experienced in the 90-120-minute basic-rest-activity-cycle during everyday life, sleep, dreams and psychotherapy [4,5,33,34].

The Science Underlying Ultradian Rhythms

Psychosocial genomics, a branch of epigenomics, explains how nurture (memory and learning) modulates the expression of biological heredity in our DNA [7-9,19,20] within the 4-Stage Creative Cycle. Epigenomics is the natural life process that supplements the limitations of early “natural selection theory” [21]. Psychosocial genomics, in particular, is an approach to answering the Penrose quandary about natural selection and the algorithmic nature of mind [10,11,22,23]. The RNA/DNA psychosocial epigenomic research underpins the molecular loop of information transduction between mind, neurons, genomics, brain plasticity and experiences

of new consciousness and cognition as occurs within each ultradian cycle initiating change and adaptivity. When genes turn on or off molecular changes happen throughout the brain and body. Initial research [24-26] found in the Mind Body Therapy Transformation study that antioxidants, anti-inflammatories and stem cells were turned on as a result of one ultradian psychotherapy session. As this genomic research continues, discoveries of many more genes have been found [27-31]. Clearly, something is happening within the physical body where the mind (thoughts) produce change.

Embedded within each ultradian is the 4-Sage (Stage) Creative Cycle shown in Figure 2 that begins with (1) asking a question, (2)

puzzling and reviewing the depth of the question before (3) having an insight or direction and then (4) putting this new realization into action in everyday life. Buddha, Siddhārtha Guatma, who lived from 563-480 BCE, discovered how time heals within the 4 Noble Truths

[32]: (1) being ill-at-ease/suffering, *duḥkha* (2) review the causes of suffering, *samudāya* (3) suffering ceases/become calm, *nirodha* and (4) apply these new truths to make a better life, *mārga*.

Four Sages of Consciousness Buddha's 4 Noble Truths

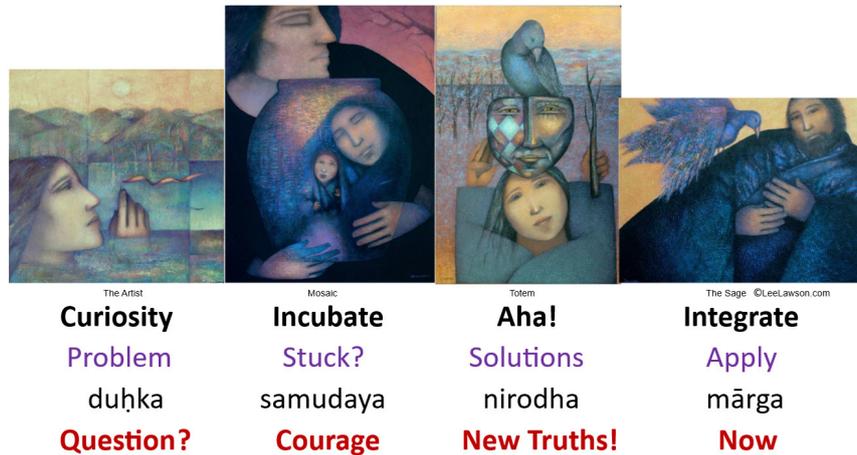


Figure 2: ©Kathryn Rossi. The 4 Sages (Stages) of consciousness are imbedded in Buddha's 4 Noble Truths. Stage 1: Curiosity/problem (*duḥkha*) asks a pertinent question. Stage 2: Being stuck and incubating on the problem (*samudāya*) requires courage to face fear and difficulty. Stage 3: Possible solutions, directions, the Aha! (*nirodha*) brings new truths! Stage 4: Integrating and applying fresh solutions (*mārga*) into present day life.

This is what we apply to help people to triumph over intellectual difficulties, trauma, loss and grief. It may not be the first ultradian cycle that creates a solution to the problem, but in time much can be accomplished. Each of these 4 stages and sage truths have an active time-frame action of approximately 20 minutes shown in Figure 1, although this can be shorter or longer depending on circumstance. While it might not be difficult to enjoy a 20-minute break [33-35], the arousal phase can be very painful exploring how to resolve a problem, loss, or emotional trauma. Resistance and fear may enter the equation causing a truncated experience. If a problem is not faced it cannot be solved and this avoidance can result in endless cycles of suffering and confusion. When there is an understanding that the wave nature of consciousness will not keep you in perpetual misery a newfound courage to directly face the problem for possible resolution begins. This depth of inquiry generally lasts about 20 minutes. All of us already have a lifetime of experience doing miserable things for 20 minutes at a time. Procrastination stems from fear and the anticipation of pain. It is fear we need to conquer 20 minutes at a time.

Applying the Super-Power of 20: Face your Fears and then Relax

"No one ever solved a problem without facing it." Kathryn Rossi

The 20-minute rule is amazingly simple. The next time you dread doing something, set a timer for 20 minutes and start working

on whatever it is you've been putting off. It doesn't matter if you're slow at first, the important thing is that you work on your task for just 20 minutes. Simply experience with an open mind to discover if this is helpful and that you find some peace and resolution [36]. Could this now become your personal superpower for change using this awareness to let your fear go and to face your problems directly and efficiently? Today is a good day to test out how time can heal to help you become more resilient as you transform your life from loss, grief and trauma into peace to live a more satisfying and resilient life.

Conclusion

Learning to apply the chronobiological sciences of ultradian rhythms, all the way from mind to gene, are imbedded in the 4-Stage Creative Cycle and can bring inner states of peace and clarity that allow the brain/body to cope more effectively with intellectual disabilities to mitigate trauma, loss and grief with newfound consciousness. When these signals for arousal or rest are ignored, then stress, disruption and malfunction can result making it difficult or impossible to adapt to new incoming stimuli for creating effective and resilient change. We can use time to naturally enhance healing 12 times a day and offering 84 chances each week to solve a problem to come to peace, clarity, transformation and emotional resiliency.

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