

QUANTUM / CIRCADIAN HEALTH PROTOCOLS	WHAT IT DOES	RESEARCH PAPERS	NOTES
 See the sunrise & get early morning sunlight 	Sets your master circadian clock. Turns on multiple hormones: leptin, cortisol, melatonin production. Red & IR frequencies increase cellular energy production & cellular repair/healing	Effects of Dawn and Morning Blue Light on Daytime Cognitive Performance, Well-being, Cortisol and Melatonin Levels Chronobiology International, 2013; 30(8): 988–997 https://orbi.uliege.be/bitstream/2268/171514/1/Gabel_Cl_2013.pdf Transition from Dim to Bright Light in the Morning Induces an Immediate Elevation of Cortisol Levels The Journal of Clinical Endocrinology & Metabolism, Volume 86, Issue 1, 1 January 2001, Pages 151–157 https://academic.oup.com/jcem/article/86/1/151/2841140	
2. Get bright natural light through the day	Bright (high lux) light elevates hormones (eg testosterone, estrogen, melatonin) & neurotransmitters (eg dopamine, serotonin), elevates mood, decreases anxiety	Time spent in outdoor light is associated with mood, sleep, and circadian rhythm-related outcomes. Journal of Affective Disorders, Volume 295, 1 December 2021, Pages 347-352 https://www.sciencedirect.com/science/article/abs/pii/S01650327210 08612 Bright daytime light enhances circadian amplitude in a diurnal mammal PNAS June 1, 2021 118 (22) e2100094118 https://www.pnas.org/content/118/22/e2100094118	
3. Get UVA sunlight on eyes and skin	Releases nitric oxide, lowers blood pressure	UVA-Induced Release of Nitric Oxide from Skin May Have Unexpected Health Benefits Journal of Investigative Dermatology (2014) 134, 1791–1794 https://core.ac.uk/download/pdf/82537127.pdf	



The Risks and Benefits of Sun Exposure. Builds Vitamin D, Iowers cholesterol Reduces all cause The Risks and Benefits of Sun Exposure. Dermato-Endocrinology October 2016, 8(1):00-00 DOI:10.1080/19381980.2016.1248325 https://www.researchgate.net/publication/309299438 The Risks and	TH PROTOCOLS	IRCADIAN WHAT IT DOES	RESEARCH PAPERS	NOTES
mortality Activates endocrine, adrenal and immune systems Builds gut microbiome IMPORTANT: sensible sun exposure (without getting a sunburn) does NOT increase skin cancer rates 4. Get UVB sunlight on eyes and skin 4. Get UVB sunlight on eyes and skin Activates endocrine, adventing the sensible sun exposure (without getting a sunburn) does NOT increase skin cancer rates Activates endocrine, adventing the sensible sun exposure is a risk factor for all-cause mortality: the Melanoma in Southern Sweden cohort. J Intern Med. 2014 Jul;276(1):77-86. doi: 10.1111/joim.12251 How UV Light Touches the Brain and Endocrine System Through Skin, and Why Endocrinology. 2018 May: 159(9): 1992-2007. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5905393/ Sunlight Offers Surprise Benefit – It Energizes Infection Fighting T Cells https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5905393/ Skin Exposure to Narrow Band Ultraviolet (UVB) Light Modulates the Human Intestinal Microbiome Frontiers in Microbiology. 2019; 10: 2410. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6821880/ Cutaneous malignant melanoma incidences worldwide by sex, age, and skin type over UVB dose shows no role for sunburn, but implies one for Vitamin D3 DermatoEndocrinology. 9:1, e1267077 https://www.nafolonine.com/dol/pdt/10.1080/19381980.2016.12670	E III III III III III III III III III I	Builds Vitamin D, lowers cholesterol Reduces all cause mortality Activates endocrine, adrenal and immune systems Builds gut microbiome IMPORTANT: sensible sun exposure (without getting a sunburn) does NOT increase skin	The Risks and Benefits of Sun Exposure. Dermato-Endocrinology October 2016, 8(1):00-00 DOI:10.1080/19381980.2016.1248325 https://www.researchgate.net/publication/309299438 The Risks and Benefits of Sun Exposure 2016 The Health Benefits and Risks from Moderate Sun Exposure - good summary of research https://www.grassrootshealth.net/blog/health-benefits-risks-moderate-sun-exposure/ Avoidance of sun exposure is a risk factor for all-cause mortality: the Melanoma in Southern Sweden cohort. J Intern Med. 2014 Jul;276(1):77-86. doi: 10.1111/joim.12251 https://pubmed.ncbi.nlm.nih.gov/24697969/ How UV Light Touches the Brain and Endocrine System Through Skin, and Why Endocrinology. 2018 May: 159(5): 1992-2007. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5905393/ Sunlight Offers Surprise Benefit - It Energizes Infection Fighting T Cells https://gumc.georgetown.edu/news-release/sunlight-offers-surprise-benefit-it-energizes-infection-fighting-t-cells/ Skin Exposure to Narrow Band Ultraviolet (UVB) Light Modulates the Human Intestinal Microbiome Frontiers in Microbiology. 2019; 10: 2410. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6821880/ Cutaneous malignant melanoma incidences worldwide by sex, age, and skin type over UVB dose shows no role for sunburn, but implies one for Vitamin D3 DermatoEndocrinology, 9:1, e1267077	



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5. Red light therapy / Photobiomodulation	Increases cellular energy production Promotes cellular repair Improves healing & recovery from injuries Increases athletic performance Improves sleep quality	How Photobiomodulation Therapy Can Improve Skin, Hair, Metabolism & Thyroid - good summary of research https://wellnessmama.com/396078/photobiomodulation/ A Potential Role for Photobiomodulation Therapy in Disease Treatment and Prevention in the Era of COVID-19 Aging & Disease 2020 Dec; 11(6): 1352–1362. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7673843/ Photobiomodulation Directly Benefits Primary Neurons Functionally Inactivated by Toxins Metabolism and bioenergeticsl volume 280, issue 6, p4761-4771, february 2005 https://www.jbc.org/article/S0021-9258(20)76125-9/fulltext Red Light and the Sleep Quality and Endurance Performance of Female Basketball Players Journal of Athletic Training. 2012 Nov-Dec; 47(6): 673-678. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3499892/ Treatments for traumatic brain injury with emphasis on transcranial near-infrared laser phototherapy Neuropsychiatric Disease Treatmeant. 2015; 11: 2159-2175. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4550182/ Significant improvements in cognitive performance post-transcranial, red/near-infrared light in chronic, mild traumatic brain injury Journal of Neurotrauma. 2014 Jun 1:31(11):1008-17. https://pubmed.ncbi.nlm.nih.gov/24568233/	



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6. Avoid artificial light after dark	Bright white & blue light after sunset dehydrates cells, inhibits melatonin release, increases cortisol & blood sugar, inhibits sleep, causes mitochondria dysfunction, and is strongly linked to neurodegeneration, metabolic diseases & cancer	Blue light has a dark side https://www.health.harvard.edu/staying-healthy/blue-light-has-a-dark-side Daily blue-light exposure shortens lifespan & causes brain neurodegeneration in Drosophila npj I Aging and Mechanisms of Disease, volume 5, Article number: 8 (2019) https://www.nature.com/articles/s41514-019-0038-6 Acute Effects of Bright Light Exposure on Cortisol Levels J Biol Rhythms. 2010 Jun; 25(3): 208–216. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3686562/ Circadian clocks and breast cancer Breast Cancer Research volume 18, Article number: 89 (2016) https://breast-cancer-research.biomedcentral.com/articles/10.1186/s13058-016-0743-z Light Exposure at Night Disrupts Host/Cancer Circadian Regulatory Dynamics: Impact on the Warburg Effect, Lipid Signaling and Tumor Growth Prevention PLos One. 2014; 9(8): e102776. Published 2014 Aug 6. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.01 02776 Altered Circadian Rhythms and Breast Cancer: From the Human to the Molecular Level Front Endocrinol (Lausanne). 2018; 9: 219. Published online 2018 May 4. https://www.frontiersin.org/articles/10.3389/fendo.2018.00219/full	



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7. Mitigate Wifi, cell phones & nnEMFs, especially at night	nnEMFs dehydrate cells, inhibits melatonin, inhibits autophagy, impacts brain function, linked to cancer	The interaction between electromagnetic fields at megahertz, gigahertz and terahertz frequencies with cells, tissues and organisms: risks and potential Journal of the Royal Society Interface, December 2017, 14: 20170585. https://royalsocietypublishing.org/doi/10.1098/rsif.2017.0585 Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression J Chem Neuroanat. 2016 Sep;75(Pt B):43-51. https://pubmed.ncbi.nlm.nih.gov/26300312/ UW researcher's wake-up call on cellphone radiation is finally getting heard https://magazine.washington.edu/feature/uw-researchers-wake-up-call-on-cellphone-radiation-is-finally-getting-heard/ The Comparative Study of 8Hz EMF Effect on Tissue Hydration in Brain Cortex and Subcortex of Rats Advances in Life Sciences 2017; 7(3): 31-38 http://article.sapub.org/10.5923.j.als.20170703.01.html The effect of a high frequency electromagnetic field in the microwave range on red blood cells Scientific Reports volume 7, Article number: 10798 (2017) https://www.nature.com/articles/s41598-017-11288-9	



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8. Grounding	Grounding = free electrons from the earth to build increased cellular redox (net negative charge)	The effects of grounding (earthing) on inflammation, the immune response, wound healing, and prevention and treatment of chronic inflammatory and autoimmune diseases J Inflamm Res. 2015; 8: 83–96. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4378297/ Electric Nutrition: The Surprising Health and Healing Benefits of Biological Grounding (Earthing) Altern Ther Health . 2017 Sep;23(5):8-16. https://pubmed.ncbi.nlm.nih.gov/28987038/	
9. Cold Thermogenisis	CT = increased energy via increased throughput of the electron transport chain	Cold-induced thermogenesis in humans Eur J Clin Nutr. 2017 Mar; 71(3): 345–352. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6449850/ Cold acclimation recruits human brown fat and increases nonshivering thermogenesis J Clin Invest. 2013 Aug 1; 123(8): 3395–3403. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3726172/	