

## ROLE OF SWEAT GLAND PHYSIOLOGY IN OBJECTIVE GALVANIC SKIN RESPONSE MEASUREMENT

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For the purpose of studying sweat in response to hot flashes, a type of thermal sweating, the process of extensive literature review performed in this particular project focused primarily on the eccrine sweat glands. Of the three categories of sweat glands, eccrine sweat glands account for the majority of the sweat glands on the human body, existing over almost the entire body surface, and contributing to thermal sweating. Thermal sweating occurs as a means for the human body to regulate temperature (Johnson 1996). There are approximately 1.6 to 5 million eccrine sweat glands distributed over the surface of the human body. Sweat gland density varies across different regions of the body, with the highest density on the palms of hands and soles of feet, while the lowest sweat gland density of 64 sweat glands per square centimeter is found on the back (Wilke et al., 2007). Water comprises approximately 99% of eccrine sweat, with the remaining compounds consisting mostly of varying amounts of sodium, potassium, calcium, and magnesium (Groscurth, 2002). The Galvanic Skin Response is an objective measure of skin conductance that has been linked with the peripheral sweat rate (Carpenter et al., 2005). Importance has been put upon the potential clinical significance of using the Galvanic Skin Response to objectively enumerate the influence and effectiveness of interventions for health related issues in which sweating is a substantial symptom (Tataryn et al., 1981). One of the objectives of this research is to determine the effect that various sweat gland physiological factors, such as density, ionic composition, and sweat rate, may have on the accuracy of different Galvanic Skin Response measurement techniques and devices.

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