Devices, System and Method for Evaluation of Body and Appendage Volume/Girth

**Invention:**

This invention quantitatively monitors swelling to provide appropriate treatment.

**Background:**

A variety of sources pose serious risks to people, including venomous animals, infectious microbes, and environmental toxins. Envenomation involves the process of venom entering into the body, which causes edema. Fluid builds up and the local tissue swells. This follows recognizable patterns through changes in volume and girth. That can be tracked to indicate incident severity and treatment effectiveness. Anti-venom is expensive and brings along associated risks, including allergic responses. The need for and quantity of anti-venom traditionally are determined by a subjective blend of vital signs, laboratory testing, and the edema’s leading-edge progression. This is inexact, takes significant time, and relies on skilled assessments. This invention presents a number of ways to quantitatively determine edema changes, store relevant information, and analyze data to provide treatment advice. Elastic band sensors can examine hardness, pressure, temperature, pH, color, or volume to assess dimensional changes. Other non-contact sensors can look at optical markers or ultrasound readings. This wide variety of possibilities allows easy, absolute, and quantitative determination of envenomation and treatment.

**Applications:**

- Emergency rooms
- Research

**Advantages:**

- Absolute measurement reduces skill requirements for physician assessment
• Variety of sensor mechanisms allow flexibility based on conditions and needs
• Quantitative analysis minimizes uncertainty and subjectivity
• Accurate determination of suitable anti-venom application
• Timely feedback for to assess incident severity and treatment effectiveness

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