

## PUBLISHED STUDIES REGARDING MOVING-LINE TEMPERATURE STRIPS

All Moving-Line Temperature Strips cited in the studies below were manufactured by Hallcrest, Inc. using its proprietary CliniTemp™ Moving-Line Technology

PERTINENT FACTS	TITLE	AUTHORS & PUBLICATIONS	AFFILIATIONS OF AUTHORS
<p>In anesthetized patients, forehead temperature via Moving-Line temperature strips were within 0.3° F of esophageal probe temperatures.</p>	<p>“Comparison of Crystalline Skin Temperature to Esophageal Temperatures During Anesthesia”</p>	<p>S.J. Brull, M.D.; T.Z. O’Connor, M.P.H.; E. Poglitsch, M.P.S.; R. Kosswig; D.G. Silverman, M.D. Anesthesiology, V73, No 3A, Sep 1990, A472</p>	<p>Anes. Dept., Yale University School of Medicine, Yale-New Haven Hospital, New Haven, CT</p>
<p>In anesthetized patients during cardiopulmonary bypass cooling and rewarming, forehead temperatures via Moving-Line temperature strips were within: 0.3° C of bladder temperatures 0.5° C of esophageal temperatures, and 1.0° C of pulmonary artery temperatures.</p>	<p>“Comparison of Crystalline Skin Temperature to Esophageal, Pulmonary Artery, and Bladder Temperatures During Cardiopulmonary Bypass”</p>	<p>S.J. Brull, M.D.; N.R. Connelly, M.D.; D.G. Silverman, M.D. Anesthesia and Analgesia, 1991, V72, S28.</p>	<p>Anes. Dept., Yale University School of Medicine, Yale-New Haven Hospital, New Haven, CT</p>
<p>In anesthetized patients, forehead temperatures via Moving-Line temperature strips were within 0.5° C of core temperatures in two-thirds of the patients and within 1.0° C in virtually all patients. Inducing anesthesia, vasomotor action, and changes in ambient temperatures had no meaningful effects on the forehead temperature reading.</p>	<p>“Influence of Thermoregulatory Vasomotion and Ambient Temperature Variation on the Accuracy of Core-temperature Estimates by Cutaneous Liquid Crystal Thermometers”</p>	<p>T. Ikeda, M.D.; D.I. Sessler, M.D.; D. Marder, B.A.; J. Xiong, M.D. Anesthesiology, 1997; 86:603-12</p>	<p>Dept. of Anes., University of California San Francisco; Dept. of Anes &amp; Intensive Care, University of Vienna</p>
<p>In anesthetized pediatric patients, forehead temperatures via Moving-Line temperature strips were very closely correlated to esophageal probe temperatures.</p>	<p>“A Comparison Of Esophageal Temperature Readings And Liquid Crystal Temperature Readings In The Pediatric Population”</p>	<p>C.M. Wisniewski, CRNA Masters Thesis, Aug 1991</p>	<p>Dept. of Nurse Anes., Virginia Commonwealth University.</p>
<p>Concerning Moving-Line temperature strips. “Both the accuracy and precision of liquid-crystal skin surface monitoring were within clinically acceptable ranges; irrespective of thermoregulatory vasomotion.</p>	<p>“Thermoregulatory Vasomotion Minimally Influences the Precision of Liquid-Crystal Skin-Surface Estimates of Core Temperature”</p>	<p>T. Ikeda, M.D.; D. Marder, B.A.; D.I. Sessler, M.D. Anesthesiology, V85, No 3A, Sep 1996, A419</p>	<p>Dept. of Anes., University of California San Francisco; Dept. of Anes. &amp; Intensive Care, University of Vienna</p>

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<p>Inter-operative alterations in ambient temperatures “do not produce clinically important bias” in forehead temperatures monitored via Moving-Line temperature strips. Concerning Moving-Line temperature strips, the study concluded, “Overall, the accuracy and precision of liquid-crystal thermometry appeared acceptable for intraoperative use.”</p>	<p>“Changes in Ambient Temperature Minimally Influence the Accuracy of Liquid-Crystal Skin-Surface Estimates of Core Temperature”</p>	<p>P.A. Iaizzo, Ph.D.; D.H. Chris, M.D.; R.S. Zink, M.D.; G. Kumar, MBBS; D. I. Sessler, M.D. Anesthesia and Analgesia, V82(4), Apr 1996, pp 782-789</p>	<p>Dept. of Anes. &amp; Dept. of Physiology, University of Minnesota; Dept. of Anes., University of California San Francisco</p>
<p>At all time points during malignant hyperthermia in pigs, there was very close correlation between invasive esophageal temperatures and pulmonary artery temperatures compared to axilla skin temperatures as measured by Moving-Line temperature strips. The Moving-Line temperature strips placed on the axilla skin also correlated far better to core temperatures than did electronic rectal temperature probes. (The pig axilla skin is referenced since it is believed to be more comparable to human forehead skin in terms of perfusion and thickness than are the pig forehead skin or neck skin.)</p>	<p>“Thermal Response in Acute Porcine Malignant Hyperthermia”</p>	<p>P.A. Iaizzo, Ph.D.; D.H. Chris, M.D.; R.S. Zink, M.D.; G. Kumar, MBBS; D. I. Sessler, M.D. Anesthesia and Analgesia, V82(4), Apr 1996, pp 782-789</p>	<p>Dept. of Anes. &amp; Dept. of Physiology, University of Minnesota; Dept. of Anes., University of California San Francisco</p>
<p>Temperatures displayed by Moving-Line temperature strips were far more reliable than temperatures displayed by any tested brand of Non-Moving-Line temperature strips.</p>	<p>“Measurement Offset With Liquid Crystal Temperature Indicators”</p>	<p>T.S. Shomaker, M.D.; D.G. Bjoraker, M.D. Anesthesiology, V73, No 3A, Sep 1990, A425</p>	<p>Dept. of Anes., University of Florida College of Medicine.</p>