



COMMUNITY PHARMACY FOUNDATION
COMPLETED GRANT SYNOPSIS

Quantitative Test of Lower Extremity Circulation

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Objectives	
1) Assess the effects of various medical conditions on venous pump power. 2) Identify venous refill insufficiencies and provide a quantitative aid in identifying need for support stockings.	
Methods	
Design	<ul style="list-style-type: none"> • Measure Venous Refill Time and Venous Pump Power of various medical conditions using a Photoplethysmography machine. The Photoplethysmography machine provides a quantitative approach to assessing lower extremity circulation. These numeric values can help assess need for support stockings or further medical evaluation. • Test patients were selected randomly to examine lower extremity circulation of several different medical conditions including: leg pain, Restless Leg Syndrome, lower leg edema, knee replacement, diabetes, knot under knee, possible blood clot, and pregnancy.
Study endpoints	<ul style="list-style-type: none"> • Venous Refill Time (normal > 25 seconds) • Venous Pump Power (Normal > 3%)
Results	
<ul style="list-style-type: none"> • Of the conditions examined for Venous Refilling Time, all were identified as normal except Restless Leg Syndrome, Diabetes, knot under knee, and possible blood clot. Of those conditions, possible blood clot presented as a severe discharge disorder. • Of the conditions examined for Venous Pump Power, all were identified as normal except leg pain, knot under knee and possible blood clot. Possible blood clot had results that were well below normal. 	
Conclusion	
<p>As one would expect, a variety of medical conditions can effect lower extremity circulation. This study showed the value of a Photoplethysmography machine in providing a quantitative way to look at circulation disorders. Instead of traditional more subjective tests, the Photoplethysmography machine provides a specific number showing Venous Refill Time and Venous Pump Power. These numbers can aid in diagnosis circulatory disorders by giving concrete data to compare to known, healthy extremity data. The test results can also be helpful in monitoring a specific patient by examining extremities over time.</p> <p>Use of the Photoplethysmography machine could also serve as an early diagnostic tool. High risk medical conditions or patient's that present with early signs of circulation disorders could be examined and evaluated before additional signs or symptoms present. Done at a Community Pharmacy, this screening could become a valuable niche business. The Photoplethysmography machine could become a revenue source in both a charge for the test and resulting compression stocking sales.</p>	

For further information and/or materials on this grant, please visit
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