

TAPE it UP!

Kinesiology Tape & Tissue Temperature

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ABSTRACT

Studies involving the effects of kinesiology tape (KT) are scarce and collectively inconclusive. Behind the application of KT is the science of how skin responds to a variety of stimuli. Elastic properties of KT manipulate the skin and the fluid pressure gradient beneath the skin, allowing better movement of lymph and blood circulation. Proprioception to the area is thus enhanced. The purpose of the current study was to examine the effects of different kinesiology taping patterns on temperature fluctuations over time, indicative of blood flow. 7 track athletes were taped with each pattern at rest and monitored for 30 minutes, the trials were spaced two weeks apart. Repeated measures and dependent t-tests were used and found a 2°F increase in temperature between preSS and midSS ($p=.045$). No significant difference was found between the FD measures but there was a significant difference between all SS and FD measures ($p<.001$). The results indicate that KT increases temperature within 15 minutes of application.

BACKGROUND

- KT is made of a cotton/nylon fabric blend with elastic properties and an adhesive backing.
- Usually used for musculoskeletal pain management in a clinical setting, KT has begun to appear in the athletic scene more routinely.
- Decompression of subcutaneous interstitial spaces relieves underlying structures of excess pressure, usually caused by inflammation from injury.
- Increased fluid movement and decompressed receptors, nerves, and blood vessels bring awareness and enhanced proprioception to the area of application.
- Contributes to enhancement of proprioceptive awareness via increased biofeedback through cutaneous stimulation.

PURPOSE

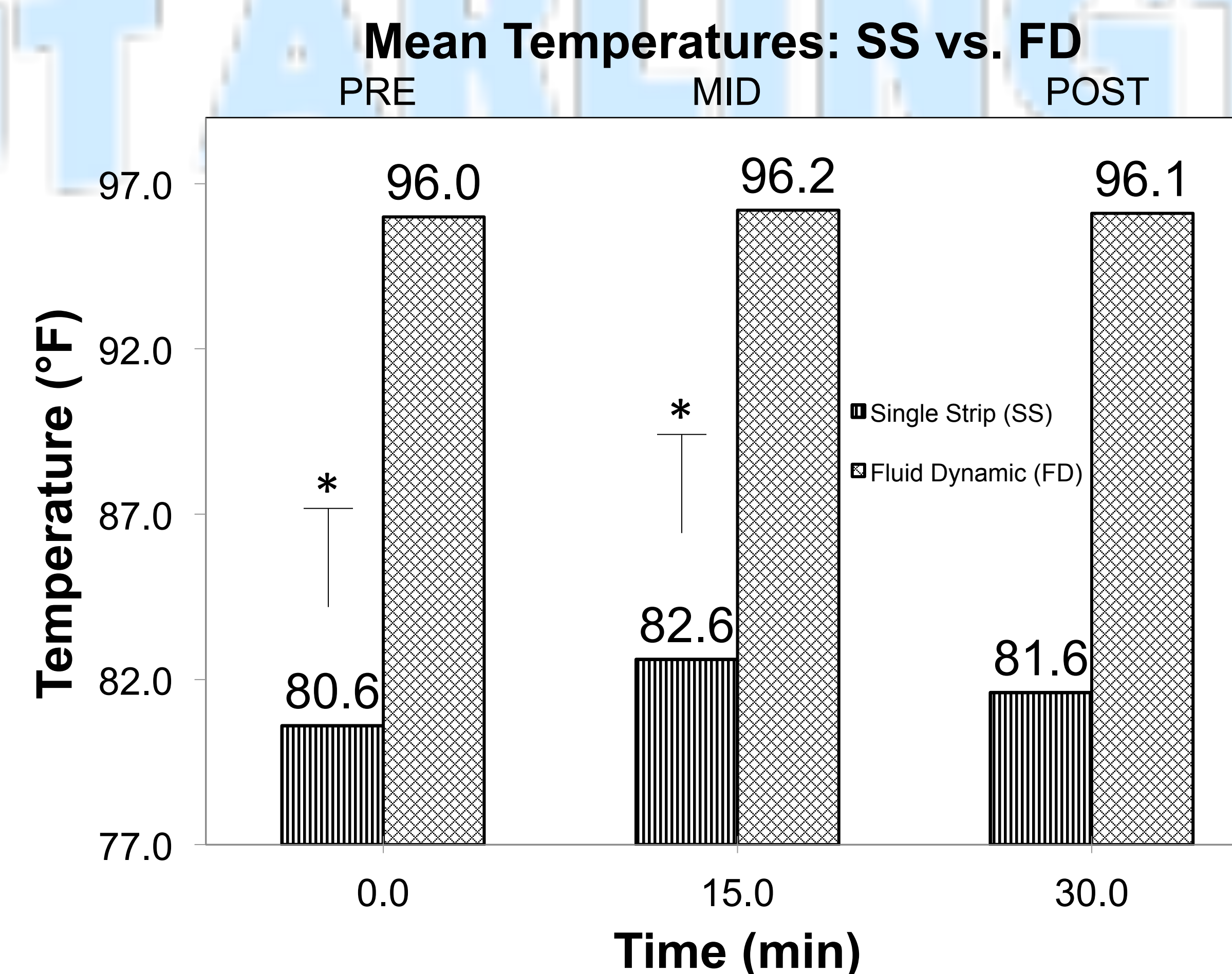
To examine the effect of different kinesiology taping patterns on tissue temperature fluctuations over time, which is indicative of changes in blood flow.

METHODS

- 7 track athletes (5 female, 2 male)
- Participants were taped twice, two weeks apart (SS/FD).
- Alcohol used to clean the skin on the anterolateral aspect of the thigh of the lead leg.
- Measurements taken at rest, and before any physical activity.
- Measurements were taken with a dermal infrared thermometer and recorded in degrees F.
- 3 temperature measurements for each pattern:
 - PRE (before application)
 - MID (15 minutes)
 - POST (30 minutes)
- Repeated measures analysis done for each pattern (SS & FD) followed by a dependent t-test for SS, and finally a dependent t-test to compare SS against FD.



RESULTS



RESULTS

	TIME (min)	SS (°F)	FD (°F)
PRE	0.0	80.6	96.0
MID	15.0	82.6	96.2
POST	30.0	81.6	96.1

- A significant 2° increase ($p=.04$) in recorded temperature occurred between preSS (0 min) and midSS (15 min).
- No significant difference between preFD, mid FD, and postFD.
- A significant difference was found between SS and FD overall ($p<.001$).

DISCUSSION & CONCLUSION

- The most significant increase in recorded temperature with KT occurs between 0-15 minutes of application.
- Athletes can use this information to apply KT with adequate time to enhance warm-ups and prevent injury.
- The use of thermal imaging would give greater insight to how KT affects fluid movement and temperature under different taping patterns.
- Further research is still warranted on the effects of KT on blood circulation and tissue temperature.
- Limitations:
 - Ambient weather
 - Measurement of temperature
 - Concurrent application

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