

A dramatic sunset or sunrise scene with a bright sun in the upper left, casting rays across a sky filled with colorful, textured clouds in shades of yellow, orange, and red. The overall atmosphere is warm and glowing.

SCIENCE OF FOAM ROLLING

Q: What is foam rolling?

A: A form of self-
myofascial release

**Q: What is self-myofascial
release?**

A: An umbrella term for techniques in which pressure is applied to muscle and fascia by an individual to themselves

What might foam rolling be able to do?

| Outcome | Does foam rolling have any effect? |
|------------------------------|-------------------------------------------|
| Acute flexibility | ? |
| Acute athletic performance | ? |
| Chronic flexibility | ? |
| Recovery and muscle soreness | ? |

Increase acute flexibility

| Study | Significant increase? | Non-significant increase? | Significant compared to control? | Non-significant compared to control? | Control group | Flexibility test? |
|----------------------------------|-----------------------|---------------------------|----------------------------------|--------------------------------------|---------------------------|--------------------|
| MacDonald (2012) | Yes | n/a | Yes | n/a | Non-training control | Knee flexion ROM |
| Sullivan (2013) | Yes | n/a | Yes | n/a | Non-training control | Sit-and-reach test |
| Jay (2014) | Yes | n/a | Yes | n/a | Non-training control | Sit-and-reach test |
| Halperin (2014) | Yes | n/a | No difference | No difference | Static stretching control | Ankle flexion ROM |
| Amico (non-peer reviewed) | Yes | n/a | No difference | No difference | Static stretching control | Knee flexion ROM |
| Howe (2013) | No change | No change | No difference | No difference | Static stretching control | Sit-and-reach test |
| Sharp (2012) (non-peer-reviewed) | No change | No change | Worse than control | n/a | Emmett technique | ITB flexibility |

Conclusion: foam rolling is
probably effective for
improving flexibility acutely

Affect acute athletic performance

| Study | Significant change? | Non-significant change? | Significant compared to control? | Non-significant compared to control? | Control group | Performance test(s)? |
|----------------------------------|---------------------|-------------------------|----------------------------------|--------------------------------------|---------------------------|-------------------------------------------------------------------|
| Amico (non-peer-reviewed) | No difference | Yes, improvement | Superior to control | n/a | Static stretching control | Isometric knee flexion torque + 1-leg horizontal jump performance |
| Halperin (2014) | No difference | Yes, improvement | Superior to control | n/a | Static stretching control | Isometric plantar flexion torque |
| Sharp (2012) (non-peer-reviewed) | No difference | Yes, improvement | No difference | No difference | Emmett technique | Counter-movement jump performance |
| MacDonald (2012) | No difference | Yes, reduction | No difference | Superior to control | Non-training control | Isometric knee extension torque and RFD |
| Janot (2013) | No difference | Yes, reduction | No difference | Superior to control | Static stretching control | Wingate test |
| Sullivan (2013) | No difference | Yes, reduction | No difference | Inferior to control | Non-training control | Isometric knee flexion torque |
| Fama (non-peer-reviewed) | No difference | Yes, reduction | Inferior to control | n/a | Dynamic warm-up control | Squat jump, counter-movement jump and depth jump performance |
| Healy (2014) | n/a | n/a | No difference | No difference | Plank control | Vertical jump height and power, isometric force, and agility |

Conclusion: foam rolling
probably does not affect
athletic performance acutely
like static stretching

Increase chronic flexibility

| Study | Significant increase? | Non-significant increase? | Significant compared to control? | Non-significant compared to control? | Control group | Flexibility test? |
|---------------------------------------|-----------------------|---------------------------|----------------------------------|--------------------------------------|-------------------|-------------------------|
| Miller (2006) | Yes | n/a | No difference | Yes | No treatment | Active knee extension |
| Ebrahim (2013) | Yes | n/a | n/a | n/a | No treatment | Not described |
| Mohr (2014) | Yes | n/a | No difference | Worse than control | Static stretching | Passive hip flexion ROM |
| Scherer (2013) (non-peer reviewed) | Yes | n/a | Yes | n/a | No treatment | Sit-and-reach test |

Conclusion: foam rolling
might well improve chronic
flexibility

Improve recovery and muscle soreness

| Study | Significant reduction? | Non-significant reduction? | Significant compared to control? | Non-significant compared to control? | Control group | Muscle soreness? |
|------------------|------------------------|----------------------------|----------------------------------|--------------------------------------|---------------|------------------------------------------|
| MacDonald (2014) | Yes | n/a | Yes | n/a | No treatment | BS-11 Numerical Rating Scale from 0 - 10 |
| Jay (2014) | Yes | n/a | Yes | n/a | No treatment | Visual Analogue Scale from 0 - 10 |

Conclusion: foam rolling
might improve recovery and
reduce muscle soreness

Summary

| Outcome | Does foam rolling have any effect? |
|------------------------------|-------------------------------------------|
| Acute flexibility | Probably improves |
| Acute athletic performance | Probably no effect |
| Chronic flexibility | Possibly improves |
| Recovery and muscle soreness | Possibly improves |