UNIVERSITY of CATANZARO (Italy)
"*MAGNA GRÆCIA*"
School of Medicine

Chronic Achilles tendon pain: tendon microcirculation and clinical study using Colour Doppler sonography and extracorporeal shock wave therapy (ESWT)

A. Ammendolia S. Chiodo T. Iona

Achilles tendinopathy is a common cause of posterior heel pain in the athletes and is often difficult to treat

Extrinsic factors

- ❖ training errors
- ❖ excessive mechanical overload
- ❖ advanced age
- ❖ fatigue
- ❖ obesity

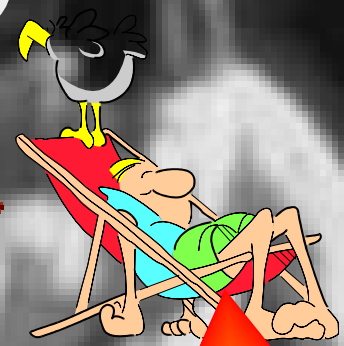
Intrinsic factors

- abnormal range of motion of the subtalar joints
- hyperpronation syndrome
- leg length discrepancy

overload syndrome

Kolodziej et, 1999; Myerson et al, 1999; Nigg et al, 2001

Recently, some clinical studies have demonstrated the association between increased tendon microvascularity and the symptomatic chronic achilles tendinopathy.



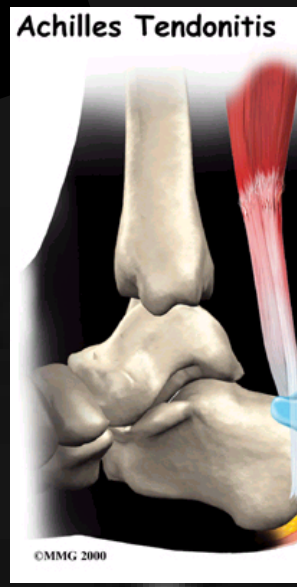
Traditional non operative treatment

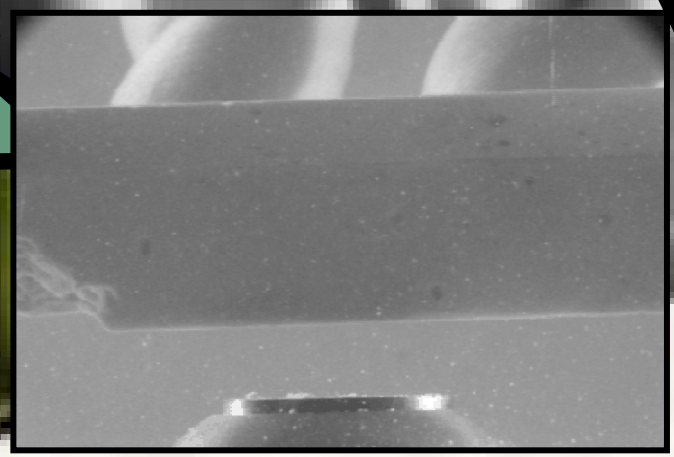
extracorporeal shock wave therapy

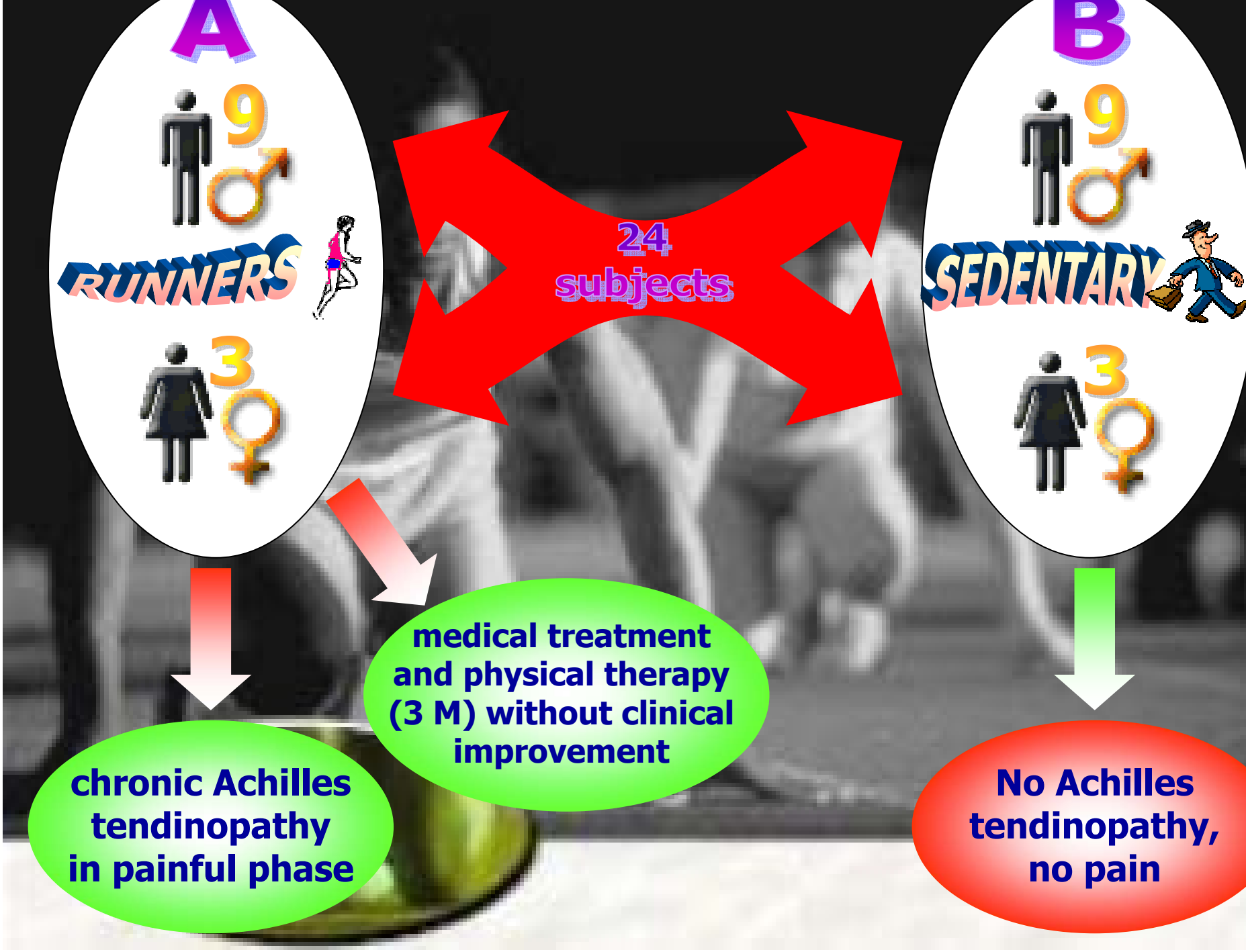
Öhberg et al, 2001; Reiter et al, 2004; Alfredson et al, 200
Richards et al, 2005; Knobloch et al, 2006

to evaluate correlation tendon microvascularity/ pain

to determine efficacy radial ESWT






A
9
RUNNERS
3
24
subjects
B
9
SEDENTARY
3
medical treatment
and physical therapy
(3 M) without clinical
improvement
chronic Achilles
tendinopathy
in painful phase
No Achilles
tendinopathy,
no pain

METHODS

A

9

RUNNERS

3

B

9

SEDENTARY

3

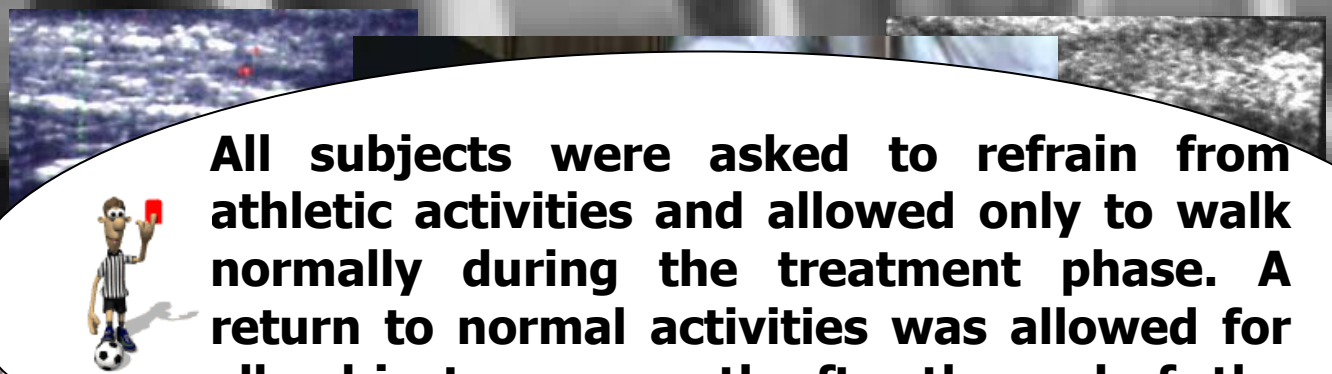
✓ informed consent

✓ clinical examination

0 **VAS** 10

direct palpation of the tendon as well as pain during ambulation

lov identical echographic evaluation with Color Doppler, viss
Do provided by a single operator, using a Toshiba Power 00
sh(Vision 9000 device with 7.5 mhz sound ar



All subjects were asked to refrain from athletic activities and allowed only to walk normally during the treatment phase. A return to normal activities was allowed for all subjects one month after the end of the treatment.

hypoec

Achilles te

vascularizatio

RESULTS

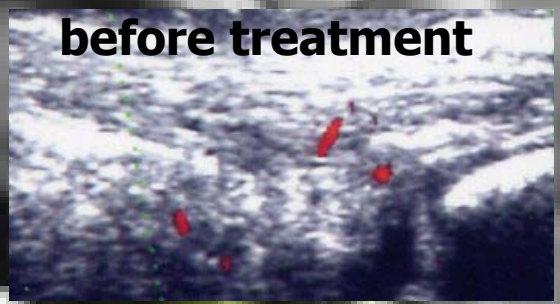
A

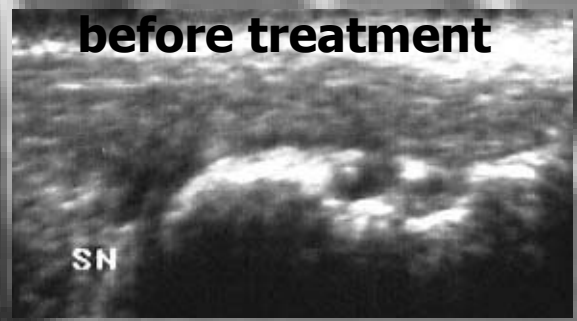
9 ♂ RUNNERS 3 ♀

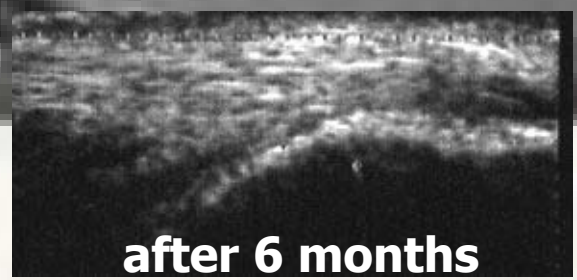
B

9 ♂ SEDENTARY 3 ♀

In group A we observed a normalization of microvascularity in 58.3 % of group A subjects (7 out of 12) at one month and 83.3 % (10 out of 12) at six months. No significant differences in the microvascularity of group B subjects



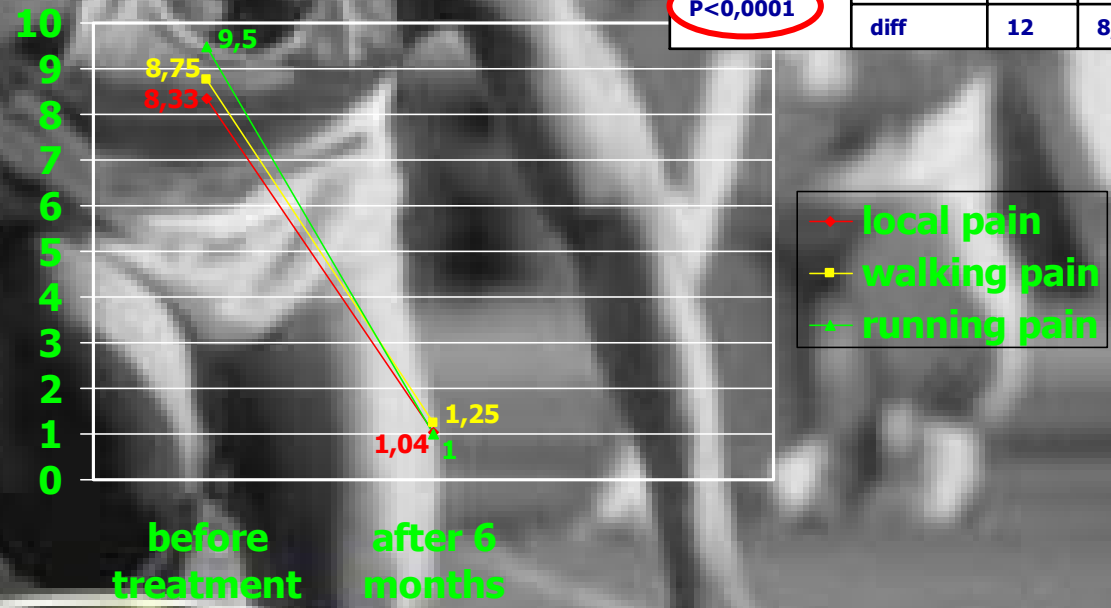




RESULTS

VAS

	Variable	Obs	Mean	Std. Err.	Std. Dev.
Local pain pre vs post P <0,0001	pre	12	8.333333	.2071939	1.096655
	post	12	1.041667	.3165769	.7177406
	diff	12	7.291667	.3766797	1.304857
Walking pain pre vs post P<0,0001	pre	12	8,75	.1896967	1.37345
	post	12	1,25	.3964807	.6571287
	diff	12	7,5	.3077287	1.066004
Running pain Pre vs post P<0,0001	pre	12	9,5	.1507557	1.507557
	post	12	1	.4351941	.522233
	diff	12	8,5	.3793935	1.314257



No significant complication was observed in either treatment group, except for a temporary increase in paratendon edema in three group A subjects, which responded to local cryotherapy.

DISCUSSION

...there is a relationship between tendinopathy and microvascularity, but not between microvascularity and duration of symptoms ..

(Richards PJ et al, Skeletal Radiol , 2005)

...microcirculatory blood flow is significan elevated at the point of pain in insertional a midportion tendinopathy...

(Knobloch K et al, Am J Sports med, 20

In our study we observed a significant (P<0,0001) decrease in tendon microvascularity in group A subjects and a significant decrease (P<0.0001) in discomfort at rest and with ambulation

Radial shock wave therapy for late epicondylitis: a prospective randomis controlled single-blind study.

(Spacca G. et al., Euro Medicophys, 200

Effectiveness of radial shock-wa therapy for calcific tendinitis of t shoulder: single-blind, randomiz clinical study.

(Cacchio A. et al, Phys Ther, 200


...it' s necessary
to study too...
Thank you!