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Effects on neovascularisation behind the good results with eccentric training in chronic mid-portion Achilles tendinosis?

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The background to the good clinical results reported using painful eccentric calf-muscle training as treatment for chronic painful mid-portion Achilles tendinosis is not known. Recently, using ultrasound and colour Doppler technique, we showed that painful tendinosis was associated with a local neovascularisation. Furthermore, in a pilot study, destroying these neovessels by sclerosing therapy cured the pain in most patients. Dynamic ultrasound and colour Doppler examination has shown that the flow in the neovessels stops during dorsiflexion in the ankle joint. Therefore, it was of interest to study the occurrence of neovascularisation before and after eccentric training. Forty-one tendons in 30 patients (22 men and 8 women, mean age 48 years) with chronic painful mid-portion Achilles tendinosis were examined with ultrasonography and colour Doppler, before and after 12 weeks of eccentric calf-muscle training. Before treatment, there was a local neovascularisation in the area with tendon changes (hypo-echoic areas, irregular fibre structure) in all tendons. At follow-up after treatment (mean 28 months), there was a good clinical result (no tendon pain during activity) in 36/41 tendons, and a poor result in 5/41 tendons. In 34/36 tendons with a good clinical result of treatment there was a more normal tendon structure, and in 32/36 tendons there was no remaining neovascularisation. In 5/5 tendons with a poor clinical result there was a remaining neovascularisation in the tendon, and in 2/5 tendons there were remaining structural abnormalities. In conclusion, in patients with chronic painful mid-portion Achilles tendinosis, a good clinical result after eccentric training seems to be associated with a more normal tendon structure and no remaining neovascularisation. Action on the area with neovessels during the eccentric training regimen might possibly be responsible for the good clinical results