Selected scientific publications - nHANCE™ driven by YoYo Technology™: More than 25 years research!

"Living systems are worn out by inactivity and developed by use"

Albert Szent-Györgyi, awarded the Nobel Prize Winner for Medicine or Physiology in 1937

- Sports Performance
- Muscle
- Clinical
- Neural
- Concurrent Exercise
- Space

- Tous-Fajardo J et al. Change of direction speed in soccer players is enhanced by functional inertial eccentric overload and vibration training. Int J Sports Physiol Perform, 11:66-73, 2016.
- Gual G et al. Patellar tendinopathy symptoms and muscle power in basket- and volleyball players following 24 weeks of inertial resistance training with eccentric overload. J Strength Cond Res., 2015 (Epub ahead of print).
- Cotter JA et al. Concurrent Exercise on a Gravity-Independent Device during Simulated Microgravity. Med Sci Sports Exerc. 5: 990-1000, 2015.
- Gual G et al. Patellar tendinopathy symptoms and muscle power in basket- and volleyball players following 24 weeks of inertial resistance training with eccentric overload. J Strength Cond Res., 2015 (Epub ahead of print).
- Bruseghini P. Effects of eight weeks aerobic interval training and of isoinertial resistance training on risk factors of cardiometabolic diseases and exercise capacity in elderly subjects. Oncotarget, 19: 16998-17015, 2015.
- Abat F et al. Clinical results after ultrasound-guided intra-tissue percutaneous electrolysis (EPI) and eccentric exercise in the treatment of patellar tendinopathy. Knee Surg Sports Traumatolog Arthrosc 4: 1046-1052, 2015.
- Cuenca-Fernandez F et al. Effect on swimming start performance of two types of activation protocols: lunge and YoYo squat. J Strength Cond Res 29: 647-655, 2015.
- De Hojo M et al. Effects of a 10-wk in-season eccentric-overload training program on muscle-injury prevention and performance in junior elite soccer players. Int J Sports Physiol Perform, 10: 46-52, 2015.
- Fernandez-Gonzalo R et al. Chronic stroke patients show early and robust improvements in muscle and functional performance in response to eccentric-overload flywheel resistance training: a pilot study. J NeuroEngineering Rehabilitation. 11: 150-161, 2014.
- Lundberg TR et al. Truncated splice variant PGC-1α4 is not associated with exercise-induced human muscle hypertrophy. Acta Physiol (Oxf). 212: 142-151, 2014.
- Lundberg TR et al. Exercise-induced AMPK activation does not interfere with muscle hypertrophy in response to resistance training in men. J Appl Physiol. 116: 611-620, 2014.
- Fernandez-Gonzalo R et al. Muscle damage responses and adaptations to eccentric-overload resistance exercise in men and women. Eur J Appl Physiol. 5: 1075-1084, 2014.
- Fernandez-Gonzalo R et al. Flywheel resistance exercise to maintain muscle oxidative potential during unloading. Aviat Space Environ Med. 85: 694-699, 2014.

- Tesch PA et al. Cardiovascular Responses to Rowing on a Novel Ergometer Designed for both Resistance and Aerobic Training in Space. Aviat Space Environ Med. 84: 516-521, 2013.
- Lundberg TR et al. Aerobic exercise does not compromise muscle hypertrophy response to short-term resistance training. J Appl Physiol. 114: 81-89, 2013.
- Fernandez-Gonzalo R et al. Acute molecular responses in untrained and trained muscle subjected to aerobic and resistance exercise training versus resistance training alone. Acta Physiol (Oxf). 209: 283-294, 2013.
- Lundberg TR et al. Aerobic exercise alters skeletal muscle molecular responses to resistance exercise. Med Sci Sports Exerc. 44: 1680-1688, 2012.
- Romero-Rodriguez D et al. Efficacy of an inertial resistance training paradigm in the treatment of patellar tendinopathy in athletes: a case-series study. Phys Ther Sport. 12: 43-48, 2011.
- Norrbrand L et al. Quadriceps muscle use in the flywheel and barbell squat. Aviat Space Environ Med. 82: 13-19, 2011.
- Norrbrand et al. Flywheel resistance training calls for greater eccentric muscle activation than weight training. Eur J Appl Physiol. 5: 997-1005, 2010.
- Lemoine JK et al. Muscle proteins during 60-day bed-rest in women: impact of exercise or nutrition. Muscle & Nerve, 39: 463-471, 2009.
- Norrbrand L et al. Resistance training using eccentric overload induces early adaptations in skeletal muscle size. Eur J Appl Physiol. 102: 271-281, 2008.
- Onambélé GL et al. Neuromuscular and balance responses to flywheel inertial versus weight training in older persons. J Biomech. 41: 3133-3138, 2008.
- Sánchez Ibáñez JM. Reconstrucción del ligamento cruzado anterior (LCA). Fisioterapia acelerada en sobrecarga excéntrica. E-fisioterapia. 05 nov, 2008.
- Haus JM et al. Contractile and connective tissue protein content of human skeletal muscle: effects of 35 and 90 days of simulated microgravity and exercise countermeasures. Am J Physiol Regul Integr Comp Physiol. 293: R1722-1727, 2007.
- Trappe TA et al. Influence of concurrent exercise or nutrition countermeasures on thigh and calf muscle size and function during 60 days of bed rest in women. Acta Physiol. 191: 147-159, 2007.
- Seynnes OR et al. Early skeletal muscle hypertrophy and architectural changes in response to high-intensity resistance training. J Appl Physiol. 102: 368-373, 2007.
- Greenwood J et al. Comparison of conventional resistance training and the flywheel ergometer for training the quadriceps muscle group in patients with unilateral knee injury. Eur J Appl Physiol. 101: 697-703, 2007.
- Rittweger J et al. Vertical jump performance after 90 days bed rest with and without flywheel resistive exercise, including a 180 days follow-up. Eur J Appl Physiol. 100: 427-436, 2007.
- Pozzo M et al. Muscle-fiber conduction velocity during concentric and eccentric actions on a flywheel exercise device. Muscle Nerve. 34: 169-177, 2006.
- Tous-Fajardo et al. The flywheel leg-curl machine: offering eccentric overload for hamstring development. Int J Sports Physiology and Performance. 1: 356-360, 2006.
- Fluckey JD et al. Insulin-facilitated increase of muscle protein synthesis after resistance exercise involves a MAP kinase pathway. Am J Physiol Endocrinol Metab. 290: E1205-11, 2006.
- Chopard A et al. Changes in dysferlin, proteins from dystrophin glycoprotein complex, costameres, and cytoskeleton in human soleus and vastus lateralis muscles after a long-term bedrest with or without exercise. The FASEB Journal express, article10.1096/fj.04-3336fje. Published online July 26, 2005.
- Reeves ND et al. Influence of 90-day simulated microgravity on human tendon mechanical properties and the effect of resistive countermeasures. J Appl Physiol. 98: 2278-2286, 2005.
- Rittweger J et al. Muscle atrophy and bone loss after 90 days' bed rest and the effects of flywheel resistive exercise and pamidronate: results from the LTBR study. Bone. 6: 1019-1029, 2005.
- Gallagher P et al. Effects of 84-days of bedrest and resistance training on single muscle fibre myosin heavy chain distribution in human vastus lateralis and soleus muscles. Acta Physiol Scand.185: 61-69, 2005.
- Tesch PA et al. Effects of 17-day spaceflight on knee extensor muscle function and size. Eur J Appl Physiol. 93: 463-468. 2005.
- Trappe S et al. Human single muscle fibre function with 84-day bed rest and resistance exercise. J Physiol. 557: 501-513, 2004.
- Alkner BA & PA Tesch. Efficacy of a gravity-independent resistance exercise device as a countermeasure to muscle atrophy during 29-day bed rest. Acta Physiol Scand. 181: 345-357, 2004.

- Rudnick J et al. Differential expression of nitric oxide synthases (NOS 1-3) in human skeletal muscle following exercise countermeasure during 12 weeks of bed rest. FASEB J. 11: 1228-1230, 2004.
- Fluckey JD et al. Insulin facilitation of muscle protein synthesis following resistance exercise in hindlimb suspended rats is independent of a rapamycin-sensitive pathway. Am J Physiol. Endocrinol Metabol. 287: E1070-E1075, 2004.
- Alkner BA & Tesch PA. Knee extensor and plantar flexor muscle size and function following 90 days of bed rest with or without resistance exercise. Eur J Appl Physiol. 93: 294-305, 2004.
- Tesch PA et al. Hypertrophy of chronically unloaded muscle subjected to resistance exercise. J Appl Physiol. 4: 1451-1458, 2004.
- Haddad F et al. Pretranslational markers of contractile protein expression in human skeletal muscle: Effect of limb unloading plus resistance exercise. J Appl Physiol. 98: 46-52, 2004.
- Alkner BA & Tesch PA. Efficacy of a gravity-independent resistance exercise device as a countermeasure to muscle atrophy during 29-day bed rest. Acta Physiol Scand.181: 345-357, 2004.
- Watanabe Y et al. Intravenous pamidronate prevents femoral bone loss and renal stone formation during 90-day bed rest. J Bone Miner Res. 19:1771-1778, 2004.
- Belin de Chantemele E et al. Does resistance exercise prevent body fluid changes after a 90-day bed rest? Eur J Appl Physiol. 92: 555-564, 2004.
- Tesch PA et al. Muscle hypertrophy following 5-week resistance training using a non-gravity-dependent exercise system. Acta Physiol Scand. 180: 89-98, 2004.
- Askling C et al. Hamstring injury occurrence in elite soccer players after preseason strength training with eccentric overload. Scand J Med Sci Sports.13: 244-250, 2003.
- Alkner BA et al. Effects of strength training, using a gravity-independent exercise system, performed during 110 days of simulated space station confinement. Eur J Appl Physiol. 90: 44-49, 2003.
- Fluckey JD et al. A rat resistance exercise regimen attenuates losses of musculoskeletal mass during hindlimb suspension. Acta Physiol Scand. 176: 293-300, 2002.
- Trappe TA et al. The influence of 5 weeks of ULLS and resistance exercise on vastus lateralis and soleus myosin heavy chain distribution. J. Grav. Physiol. 9: 127-128, 2002.
- Carrithers J et al. Skeletal muscle protein content following 5 weeks of unloading with or without resistance exercise countermeasures. J. Grav. Physiol. 9: 155-156, 2002.
- Caruso JA & Hernandez DA. Net caloric cost of a 3-Set flywheel ergometer resistance exercise paradigm. J Strength Cond Res. 16: 567-572, 2002.
- Tesch PA. Rationale for resistance exercise in space. J Aging Physical Activity. 8: 260, 2000.
- Trieschmann et al. A resistance-training regimen promoting muscle hypertrophy of unloaded muscle. J Aging Physical Activity. 8: 278-279, 2000.
- Berg HE & PA Tesch. Force and power characteristics of a resistive exercise device for use in space. Acta Astronautica. 42: 219-230, 1998.
- Tesch PA & HE Berg. Resistance training in space. Int. J. Sports Med. 18: (Suppl. 4) 322-324, 1997.
- Berg HE & PA Tesch. A gravity-independent ergometer to be used for resistance training in space. Aviat. Space Environ. Med. 65: 752-756, 1994.
- Berg HE & PA Tesch. Designing methods for musculoskeletal conditioning in weightlessness. The Physiologist. 35. Suppl. S.96-98, 1992.

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