Publications

Intramuscular triglyceride utilization and resynthesis: the effect of acute calorie restriction during recovery in elite male triathletes

High-intensity interval, but not endurance training induces muscle fiber type-specific subsarcolemmal lipid droplet size reduction in type 2 diabetic patients

Changes in metabolism but not myocellular signaling by training with CHO-restriction in endurance athletes

The muscle fiber profiles, mitochondrial content, and enzyme activities of the exceptionally well-trained arm and leg muscles of elite cross-country skiers

Restricting carbohydrate during recovery from prolonged exercise does not effect intramuscular triglyceride resynthesis

Mitochondrial increase in volume density with exercise training: More, larger or better?

ACUTE AND CHRONIC EFFECTS OF ENDURANCE TRAINING ON SR CA2+ HANDLING IN HIGHLY-TRAINED ENDURANCE ATHLETES

High intensity interval training, but not endurance training, in type 2 diabetic patients lowers subsarcolemmal lipid droplet volumetric content by reducing droplet size in type 2 muscle fibers

Influence of muscle fibertype composition on contractile Rate of Force Development (RFD) in vivo.

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Plasticity in central neural drive with short-term disuse and recovery - effects on muscle strength and influence of aging
Reliability of maximal mitochondrial oxidative phosphorylation in permeabilized fibers from the vastus lateralis employing high-resolution respirometry

Myosin content of single muscle fibers following short-term disuse and active recovery in young and old healthy men

Energy system contributions and determinants of performance in sprint cross-country skiing

Fundamental constraints in synchronous muscle limit superfast motor control in vertebrates

Gross efficiency predicts a 6-min double-poling ergometer performance in recreational cross-country skiers

Local depletion of glycogen with supra-maximal exercise in human skeletal muscle fibres

No Superior Adaptations to Carbohydrate Periodization in Elite Endurance Athletes

Plasticity in mitochondrial cristae density allows metabolic capacity modulation in human skeletal muscle

Post-exercise recovery of contractile function and endurance in humans and mice is accelerated by heating and slowed by cooling skeletal muscle

Pronounced limb and fibre type differences in subcellular lipid droplet content and distribution in elite skiers before and after exhaustive exercise

Reply from Joachim Nielsen, Kasper D. Gejl and Niels Ørtenblad

SPARC Interacts with Actin in Skeletal Muscle in Vitro and in Vivo

Metabolic Responses and Pacing Strategies during Successive Sprint Skiing Time Trials
No Muscle Is an Island: Integrative Perspectives on Muscle Fatigue

Repeated high-intensity exercise modulates Ca(2+) sensitivity of human skeletal muscle fibers

Skeletal muscle fiber characteristics and oxidative capacity in hemiparetic stroke survivors

High-intensity sprint training inhibits mitochondrial respiration through aconitase inactivation

Sarcoplasmic reticulum Ca2+ uptake rate and endogenous content in MHC I and MHC II fibres of human skeletal muscle following prolonged exercise in highly trained
Ørtenblad, N. & Nielsen, J. S., 2016.

The Physiological Mechanisms of Performance Enhancement with Sprint Interval Training Differ between the Upper and Lower Extremities in Humans

Muscle glycogen and cell function - Location, location, location

Mechanisms underlying enhancements in muscle force and power output during maximal cycle ergometer exercise induced by chronic β2-adrenergic stimulation in men

Vascular endothelial growth factor in skeletal muscle following glycogen-depleting exercise in humans

Carbohydrate restricted recovery from long term endurance exercise does not affect gene responses involved in mitochondrial biogenesis in highly trained athletes

Effects of aging on changes in postural balance with short-term disuse and active reloading

Role of glycogen in skeletal muscle SR Ca2+ regulation
Ørtenblad, N., 2015.

Repeated spring exercise impairs force of isolated single human muscle fibres
McArdle Disease: A Unique Study Model in Sports Medicine

Subcellular distribution of glycogen and decreased tetanic Ca2+ in fatigued single intact mouse muscle fibres

A PGC-1α- and muscle fibre type-related decrease in markers of mitochondrial oxidative metabolism in skeletal muscle of humans with inherited insulin resistance

Aging impairs the recovery in mechanical muscle function following 4 days of disuse

Contractile apparatus uses glycogen from specific subcellular locations: Evidence of cytosolic compartmentalization between glycogen metabolism and energy consumption in skeletal muscle
Nielsen, J., Christensen, P. & Ørtenblad, N., 2014.

Effect of whey protein hydrolysate on adaptation to endurance training in well-trained runners

Glycolytically derived ATP is essential for muscle fiber excitability and Na,K-ATPase activity in the transverse tubular system of skeletal muscle fibers

Muscle Glycogen Content Modifies SR Ca2+ Release Rate in Elite Endurance Athletes

Na,K-ATPases of rat soleus muscles require energy from the breakdown of glycogen
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Role of glycogen in skeletal muscle Ca2+ regulation

β2-Adrenergic stimulation enhances Ca2+ release and contractile properties of skeletal muscles, and counteracts exercise-induced reductions in Na+-K+-ATPase Vmax in trained men

Differences In The Mitochondrial Content Of Different Fibre Types In The Leg And Arm Muscles Of Elite Cross-Country Skiers

The Intramyocellular Lipid Content In The Arms Of Elite Cross Country Skiers Is Lower Than In Their Legs

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Physiological aspects of the subcellular localization of glycogen in skeletal muscle

Both short intense and prolonged moderate in vitro stimulation reduce the mRNA expression of calcium-regulatory proteins in rat skeletal muscle

Four days of muscle disuse impairs single fiber contractile function in young and old healthy men

Muscle glycogen stores and fatigue

Short-term disuse and subsequent recovery induce age-specific alterations in neuromuscular activation

Transient impairments in single muscle fibre contractile function after prolonged cycling in elite endurance athletes

Glycogen Resynthesis Rate Following Cross Country Skiing is Closely Correlated to Skeletal Muscle Content
Depolarisation dependent muscle fatigue in vivo following high intensity exercise

Effects of β2-agonists on force during and following anoxia in rat extensor digitorum longus muscle

Myosin content in single muscle fibers from young and old men following disuse and recovery

Pyruvate dehydrogenase and Glycogen synthase after exercise; effect of glucose intake

Skeletal muscle glycogen content and particle size of distinct subcellular localizations in the recovery period after a high-level soccer match

Subcellular localization-dependent skeletal muscle glycogen content in the recovery period after a high-level soccer match

Superfast muscles are devoid of glycogen particles in the intramyofibrillar space

Effects of ageing on single muscle fibre contractile function following short-term immobilisation

Role of glycogen availability in sarcoplasmic reticulum Ca2+ kinetics in human skeletal muscle

Aging and short-term disuse alters human single myofiber passive and active force differently

Human skeletal muscle glycogen utilization in exhaustive exercise: role of subcellular localization and fibre type

Maximal voluntary contraction force, SR function and glycogen resynthesis during the first 72 h after a high-level competitive soccer game

Effects of aging on muscle mechanical function and muscle fiber morphology during short-term immobilization and subsequent retraining
Glycogen resynthesis rate following cross-country skiing is closely correlated to skeletal muscle glycogen content

Subcellular localization-dependent decrements in skeletal muscle glycogen and mitochondria content following short-term disuse in young and old men

Short-term immobilization impairs human single muscle fibre contractility in young and old

Exhaustive endurance exercise impairs specific force and Ca2+ sensitivity of single human muscle fibers

4 days of immobilization impairs human single muscle fibre contractility in young and old

Lactate per se improves the excitability of depolarised rat skeletal muscle by reducing the Cl- conductance

Exhaustive exercise affects contractile properties of single human muscle fibres

Increased subsarcolemmal lipids in type 2 diabetes. Effect of training on localization of lipids, mitochondria and glycogen in sedentary human skeletal muscle

Exhaustive endurance exercise impairs specific force and Ca2+ sensitivity of single human muscle fibers

Effects of ageing on human skeletal muscle after immobilisation and re-training

Distinct effects of subcellular glycogen localization on tetanic relaxation time and endurance in mechanically skinned rat skeletal muscle fibres

Glycolysis in contracting rat skeletal muscle is controlled by factors related to energy state

Changes in single fibre contractility with immobilization in old and young

Changes in single muscle fibre specific force, maximal isometric quadriceps strength and muscle size after 2 weeks of immobilization in young and old men
Effects of Aerobic Training on Intramyocellular Lipid and Glycogen Localization in Type 2 Diabetic Patients

Effects of aging on changes in muscle power and postural control after immobilization and re-training

Human skeletal muscle intramyofibrillar glycogen is decreased after 14 days of immobilisation in young and old men

Immobilization leads to impaired single muscle fibre contractility in old and young healthy individuals

Muscle fatigue in elite cross country skiers; a link between sarcoplasmic reticulum function and glycogen availability?

The lactate ion protects excitability and force in depolarized muscle fibres by inhibiting chloride conductance

Changes in muscle mechanical function with 2 weeks of limb immobilization in young and old healthy men

Depletion and resynthesis of glycogen in arm and leg muscles after a classical 15-K cross-country ski race

Glycogen has a structural role in maintaining normal EC coupling in elite cross country skiers, by modulating SR Ca2+ release rate

Metabolic modulation of skeletal muscle Ca2+ handling and excitability

Subcellular localization of muscle glycogen - fibre-to-fibre heterogeneity and effect of fasting

Reduced sarcoplasmic reticulum content of releasable Ca2+ in rat soleus muscle fibres after eccentric contractions

Energy conservation attenuates the loss of skeletal muscle excitability during intense contractions

Effects of 2 weeks of immobilization on strength and neuromuscular activation in young and old healthy men

Skeletal muscle glycogen localisation - fibre type dependency and interfibre heterogeneity
Eccentric contractions reduces whole muscle force and sarcoplasmic reticulum (SR) releasable Ca$^{2+}$ of mechanically skinned type I fibres

Fatigue resistance in mechanically skinned muscle fibres is correlated with glycogen content in the I-band

Metabolic modulation of muscle excitability
Macdonald, W., Ørtenblad, N. & Bækgaard Nielsen, O., 2006.

Muscle glycogen localisation and content modulates force time characteristics in mechanically skinned skeletal muscle fibres

Reduced insulin-mediated citrate synthase activity in cultured skeletal muscle cells from patients with type 2 diabetes: Evidence for an intrinsic oxidative enzyme defect

Reduced insulin-mediated citrate synthase activity in cultured skeletal muscle cells from patients with type 2 diabetes: Evidence for an intrinsic oxidative enzyme defect

Excitability of the T-tubular system in rat skeletal muscle: roles of K$^{+}$ and Na$^{+}$ gradients and Na$^{+}$-K$^{+}$ pump activity

The exciting mitochondrion

A novel signalling pathway originating in mitochondria modulates muscle membrane excitability

A novel signalling pathway originating in mitochondria modulates rat skeletal muscle membrane excitability

Phospholipase A2 and Reactive Oxygen Species are important mediators of taurine release from myotubes

Reactive oxygen species are important mediators of taurine release from skeletal muscle cells

Cellular model for induction of drip loss in meat

Enhanced sarcoplasmic reticulum Ca(2+) release following intermittent sprint training
Impaired sarcoplasmic reticulum Ca(2+) release rate after fatiguing stimulation in rat skeletal muscle

Antioxidant status and lipid peroxidation after short-term maximal exercise in trained and untrained humans

Xanthine oxidase in human skeletal muscle following eccentric exercise: a role in inflammation

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Antioxidant status and lipid peroxidation after short-term maximal exercise in trained and untrained humans

Xanthine oxidase in human skeletal muscle following eccentric exercise: a role in inflammation

Activities
Can aerobic exercise elicit neuroprotective effects in multiple sclerosis?
Martin Langeskov Christensen (Guest lecturer), Lars G. Hvid (Guest lecturer), Mikkel Karl Emil Nygaard (Guest lecturer), Henrik Boje Jensen (Guest lecturer), H.H. Nielsen (Guest lecturer), T. Petersen (Guest lecturer), Niels Ørtenblad (Guest lecturer), Egon Stenager (Guest lecturer), Simon F Eskildsen (Guest lecturer), Ulrik Dalgas (Guest lecturer) 3 May 2019

Repeated sprint exercise affects contractile apparatus and force production of isolated human muscle fibres.
Niels Ørtenblad (Lecturer) 13 Sep 2014

Role of glycogen in skeletal muscle Ca2+ regulation.
Niels Ørtenblad (Lecturer) 23 Aug 2014

Cykeltræning - tips og tricks fra forskerverdenen
Niels Ørtenblad (Lecturer)
European Journal of Applied Physiology (Journal)
Niels Ørtenblad (Peer reviewer)
13 Jul 2012 → 30 Jul 2012

Role of Glycogen in Muscle Function
Niels Ørtenblad (Lecturer)
17 Jun 2012

American College of Sports Medicine
Niels Ørtenblad (Organizer)
1 Jun 2012

Role of Glycogen in Skeletal Muscle Function
Niels Ørtenblad (Lecturer)
1 Jun 2012

American College of Sports Medicine
Niels Ørtenblad (Organizer)
29 May 2012 → 2 Jun 2012

Fatigue with Prolonged Exercise: Trothetsmekanismer och uthållighet
Niels Ørtenblad (Lecturer)
28 Apr 2012

Carbohydrate and Performance: Kolhydrater och prestation
Niels Ørtenblad (Lecturer)
27 Apr 2012

Role of Muscle Glycogen for Sport Performance
Niels Ørtenblad (Lecturer)
15 Mar 2012

Cykling; præstation og træning
Niels Ørtenblad (Lecturer)
16 Feb 2012

Exercise Physiology
Niels Ørtenblad (Participant)
19 Jan 2012 → 21 Jan 2012

Technology and Biomechanics in Sport, Ramundberget
Niels Ørtenblad (Participant)
17 Jan 2012 → 19 Jan 2012

Muscle and Nerve (Journal)
Niels Ørtenblad (Peer reviewer)
2 Jan 2012 → 12 Feb 2012
Niels Ørtenblad (Censor)
19 Dec 2011

Frontiers in Physiology (Journal)
Niels Ørtenblad (Peer reviewer)
15 Dec 2011 → 12 Feb 2012

GLYCOGEN RESYNTHESIS RATE FOLLOWING CROSS COUNTRY SKIING IS CLOSELY CORRELATED TO SKELETAL MUSCLE CONTENT
Niels Ørtenblad (Lecturer)
1 Dec 2011

Peer reviewer (Journal)
Niels Ørtenblad (Peer reviewer)
10 Nov 2011 → 25 Nov 2011

Skeletal muscle fatigue: role of glycogen availability and subcellular localization within fibre types
Niels Ørtenblad (Lecturer)
10 Nov 2011

Mid Sweden University
Niels Ørtenblad (Visiting researcher)
6 Nov 2011 → 11 Nov 2011

Københavns Universitet (External organisation)
Niels Ørtenblad (Member)
1 Nov 2011 → 30 Nov 2011

Muscle Metabolism and E-C Coupling
Niels Ørtenblad (Guest lecturer)
3 Jun 2011

Seminar: Role of Muscle Glycogen on Skeletal Muscle Function
Niels Ørtenblad (Lecturer)
1 Jun 2011

Inviteret foredrag: Role of Structure on the Skeletal Muscle Function
Niels Ørtenblad (Lecturer)
7 Apr 2011

What I am talking about, When Im talking about Glycogen: The role of glycogen localization on skeletal muscle E-C coupling
Niels Ørtenblad (Lecturer)
28 Mar 2011

The Scientific Research Process
Niels Ørtenblad (Lecturer)
16 Mar 2011

Censor
Niels Ørtenblad (Censor)
1 Mar 2011 → 1 Apr 2011
Department of Physiotherapy, Faculty of Medicine, Nursing and Health Sciences, Victoria
Niels Ørtenblad (Visiting researcher)
1 Mar 2011 → 15 Jul 2011

 Advanced Exercise Physiology
Niels Ørtenblad (Other)
11 Feb 2011 → 1 Apr 2011

 Australian Catholic University
Niels Ørtenblad (Visiting researcher)
28 Jan 2011 → 28 Feb 2011

 Aarhus Universitet (External organisation)
Niels Ørtenblad (Member)
15 Jan 2011 → 31 Jan 2011

 Peer reviewer (Journal)
Niels Ørtenblad (Peer reviewer)
10 Jan 2011 → 15 Sep 2011

 Reviewer (Journal)
Niels Ørtenblad (Peer reviewer)
5 Jan 2011 → 19 Jan 2011

 Københavns Universitet (External organisation)
Niels Ørtenblad (Member)
4 Nov 2010 → 3 Dec 2010

 Sydafrika (External organisation)
Niels Ørtenblad (Member)
1 Oct 2010 → 1 Nov 2010

 Human Performance and Fatigue
Niels Ørtenblad (Censor)
28 Jun 2010 → 19 Jul 2010

 Glykogen og præstation
Niels Ørtenblad (Lecturer)
5 Jun 2010

 Homage to August Krogh : Celebrating the 90th anniversary of his Nobel prize in physiology and medicine
Niels Ørtenblad (Participant)
1 Jun 2010 → 4 Jun 2010

 Københavns Universitet (External organisation)
Niels Ørtenblad (Member)
1 Jun 2010 → 5 Jul 2010

 Ministerium (External organisation)
Niels Ørtenblad (Member)
15 May 2010 → 15 Jun 2010
Anaerob Træning: Censor ved kurset Anaerob Træning, Institut for Idræt, KU
Niels Ørtenblad (Censor)
28 Apr 2010 → …

University of Southern Denmark (External organisation)
Niels Ørtenblad (Member)
21 Apr 2010

Glycogen-protein association in human skeletal muscle; effects of exercise: Opponent på PhD- afhandling af Cand Scient
Jace Drain
Niels Ørtenblad (Other)
1 Mar 2010 → 30 Apr 2010

Mid Sweden University
Niels Ørtenblad (Visiting researcher)
19 Jan 2010 → 21 Apr 2010

Muskelfysiologi- og biomekanik seminar : Seminar med deltagere fra Fysiologisk Institut, AU og Institut for Idræt, AU, samt Forskningsen for Muskelfysiologi og Biomekanik, Institut for Idræt og Biomekanik, SDU
Niels Ørtenblad (Organizer)
11 Jan 2010 → …

Journal of Physiology (Journal)
Niels Ørtenblad (Editor)
1 Jan 2010

Betydningen af KATP kanaler for hjerte- og muskelfunktion
Niels Ørtenblad (Lecturer)
28 Aug 2009

The lactate ion protects excitability and force in depolarized muscle fibres by inhibiting chloride conductance.
Niels Ørtenblad (Lecturer)
26 Aug 2009

Publications Abstracts
Vascular endothelial growth factor in skeletal muscle following glycogen-depleting exercise in humans

Effects of aging on changes in postural balance with short-term disuse and active reloading

Aging impairs the recovery in mechanical muscle function following 4 days of disuse

Myosin content in single muscle fibers from young and old men following disuse and recovery

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Short-term immobilization impairs human single muscle fibre contractility in young and old

Glycogen modulate EC coupling in elite triathletes, by affecting SR Ca2+ release rate

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4 days of immobilization impairs human single muscle fibre contractility in young and old

Exhaustive exercise affects contractile properties of single human muscle fibres

Changes in single muscle fibre specific force, maximal isometric quadriceps strength and muscle size after 2 weeks of immobilization in young and old men

Effects of Aerobic Training on Intramyocellular Lipid and Glycogen Localization in Type 2 Diabetic Patients

Human skeletal muscle intramyofibrillar glycogen is decreased after 14 days of immobilisation in young and old men

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Effects of 2 weeks of immobilization on strength and neuromuscular activation in young and old healthy men

Skeletal muscle glycogen localisation - fibre type dependency and interfibre heterogeneity

Teaching Portfolio
1. Formal educational education
   • “Adjunktpædagogikum”, SDU, 2004-05.
   • Pedagogic and didactic course during Sport Science Studies, including “practical pedagogic course.”
2. Educational administration tasks
   • Member of the Study board for the “Sports and Health” studies, IOB-SDU, January 2005 through end of 2009.
   • Shorter periods head of studies.
   • In the study board period we planned, organized and implemented a new curriculum for the bachelor level of the sports science program a number of times and curriculum for the master studies.

3. Experience with teaching, guidance and exam
   • Teaching and being responsible for a number of courses within physiology and health, at “Sport and Health” and “Medical” at SDU, and at La Trobe university, Melbourne.
   • Supervisor for a number of successful and current PhD-students.
   • Supervisor for Master, and bachelor students as well as post docs.
   • Assigned as censor/examiner for “censor board for sports science”, the “censor board for biology” and the “censor board for health sciences” and function herein as censor at University of Copenhagen, Aarhus University and Aalborg University.

4. Methods, materials and tools
   • Lectures, classes, practical exercises, case based education, laboratory courses and supervision.

5. Educational development and university pedagogical tasks
   • I have been in the research board for the inter-university PhD-program for sport studies (AU, KU and SDU), PhD-program “Research Education Program for Sport (REPS)” with the board being the driving and administrative source for the PhD-course at REPS.
   • I have been in the committee developing a introducing course for professions-bachelors starting at the master level at the Faculty of Health Science, SDU.