

## **CURRICULUM VITAE**

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## **EDUCATION**

### **2011 – 2013**

Maastricht University Medical Centre+, Department of Human Movement Sciences (Maastricht, The Netherlands)

Position: Postdoctoral research fellow      Supervisor: Luc JC van Loon, Ph.D.  
Project Focus: Preservation of muscle mass with advancing age

### **2007 - 2011**

Doctor of Philosophy, McMaster University (Hamilton, ON Canada)

Degree: Kinesiology      Supervisor: Stuart M Phillips, Ph.D.  
Thesis Title: Contractile and Nutritional Modulation of Human Skeletal Muscle Protein Synthesis

### **2005-2007**

Master of Science, Ball State University (Muncie, IN USA)

Degree: Exercise Physiology      Supervisor: Todd A Trappe, Ph.D.  
Thesis Title: The effect of a cyclooxygenase-2 inhibitor on human muscle protein synthesis after acute resistance exercise

### **2000-2005**

Bachelor of Science, Ball State University (Muncie, IN USA)

Degree: Exercise Science, Applied Science

## **PROFESSIONAL EXPERIENCE**

2011-2013      Postdoctoral research fellow  
Maastricht University, Maastricht, The Netherlands

- 2007-2011 Research/Teacher Assistant: Exercise Metabolism Research Group  
McMaster University, Hamilton, ON Canada
- 2005-2007 Graduate Research Fellowship: Human Performance Laboratory  
Ball State University, Muncie, IN USA
- 2003-2005 Undergraduate Research Assistant: Human Performance Laboratory  
Ball State University, Muncie IN USA
- 2004 Internship: Human Performance Clinical/Research Laboratory Colorado State  
University, Fort Collins, CO USA

### **PUBLICATIONS (peer reviewed)**

**Burd NA**, Hamer HM, Pennings B, Pellikaan WF, Senden JMG, Gijsen AP, van Loon LJC. Substantial differences between organ and muscle specific tracer incorporation rates in a lactating dairy cow. PLoSOne (in press).

**Burd NA**, Pennings B, Groen BBL, Gijsen AP, Senden JMG, van Loon LJC. The single biopsy approach is reliable for the measurement of muscle protein synthesis rates in vivo in older men. J Appl Physiol. 2012 Sep;113(6):896-902, PMID: 22815390

Robinson MJ, **Burd NA**, Breen L, Rerечich T, Yang Y, Hector AJ, Baker SK, Phillips SM. Dose-dependent responses of myofibrillar protein synthesis with beef ingestion are enhanced with resistance exercise in middle-aged men. Appl Physiol Nutr Metab. 2013 Feb;38(2):120-5, PMID:23438221

Wall B, Dirks M, Verdijk L, Snijders T, Hansen D, Vranckx P, **Burd NA**, Dendale, van Loon LJ. Neuromuscular electrical stimulation increases muscle protein synthesis in elderly, type 2 diabetic men. AJP–Endocrinology and Metabolism. 2012 Sep;303(5):E615-23, PMID:22739107

Yang Y, Churchward-Venne TA, **Burd NA**, Breen L, Tarnopolsky, Phillips SM. Myofibrillar protein synthesis following ingestion of soy protein isolate at rest and after resistance exercise in elderly men. Nutr Metab (Lond). 2012 Jun 14;9(1):57, PMID:22698458

Camera DM, West DW, **Burd NA**, Garnham A, Phillips SM, Hawley J, Coffey V. Low muscle glycogen concentration does not suppress the anabolic response to resistance exercise. J Appl Physiol. 2012 May 24, PMID:22628371

Mitchell CJ, Churchward-Venne TA, West DWD, **Burd NA**, Breen L, Baker SK, Phillips SM. Resistance exercise load does not determine training-mediated hypertrophic gains in young men. J Appl Physiol. 2012 Apr 19, PMID:22533517

Donges CE\*, **Burd NA\***, Duffield R, Smith GC, West DWD, Short MJ, Mackenzie R, Plank LD, Shepherd PR, Phillips SM, Edge JA. Concurrent resistance and aerobic exercise stimulates both myofibrillar and mitochondrial protein synthesis in sedentary overweight middle-aged men. J Appl Physiol 2012 Jun; 112(12):1992-2001, PMID:22492939  
*\*designates co-authored manuscripts*

Churchward-Venne TA, **Burd NA**, Mitchell MJ, West DWD, Philp A, Marcotte GR, Baker SK, Baar K, Phillips SM. Supplementation of a suboptimal protein dose with leucine or essential amino acids: effects on myofibrillar protein synthesis at rest and following resistance exercise in men. *J Physiol* 2012 Mar 25, PMID:22451437

West DW, **Burd NA**, Churchward-Venne TA, Camera DM, Mitchell CJ, Baker SK, Hawley JA, Coffey VG, Phillips SM. Sex-based comparisons of myofibrillar protein synthesis after resistance exercise in the fed state. *J Physiol* 2012 Mar 1, PMID:22383503

**Burd NA**, Andrews RJ, West DWD, Little JP, Cochran AJR, Hector AJ, Cashaback JGA, Gibala MJ, Potvin JR, Baker SK, Phillips SM. Muscle time under during resistance exercise stimulates differential muscle protein sub-fractional synthetic responses in men *J Physiol* 2012, Jan 15;590(Pt 2):351-62, PMID:22106173

**Burd NA**, Groen BBL, Beelen M, Senden JMG, Gijsen AP, van Loon LJC. The reliability of using the single biopsy approach to assess basal muscle protein synthesis rates *in vivo* in humans. *Metabolism*, 2012 Mar 9;8:15, PMID:22209666

Yang Y, Breen L, **Burd NA**, Hector AJ, Churchward-Venne T, Josse AR, Tarnopolsky MA, Phillips SM. Resistance exercise enhances myofibrillar protein synthesis with graded intakes of whey in older men. *Br J Nutr.* 2012 Feb 7:1-9, PMID:22313809

**Burd NA**, Yang Y, Moore DR, Tang JE, Tarnopolsky, Phillips SM. Greater stimulation of myofibrillar protein synthesis with ingestion of whey protein isolate versus micellar casein at rest and after resistance exercise in elderly men. *Br J Nutr.* 2012 Jan 31:1-5, PMID:22289570

West DWD\*, **Burd NA**\*, Coffey VG, Baker SK, Burke LM, Hawley JA, Moore DR, Stellingwerf T, Phillips SM. Rapid aminoacidemia enhances myofibrillar protein synthesis and anabolic intramuscular signaling responses after resistance exercise. *Am J Clin Nutr.* 2011 Sep;94(3):795-803, PMID:21795443 *\*designates co-authored manuscripts*

**Burd NA**, West DW, Rerecich T, Prior T, Baker SK, Phillips SM. Validation of a single biopsy approach and bolus protein feeding to determine myofibrillar protein synthesis in stable isotope tracer studies in humans. *Nutr Metab (Lond).* 2011 Mar 9;8:15, PMID:21388545

**Burd NA**, West DW, Moore DR, Atherton PJ, Staples AW, Prior T, Tang JE, Rennie MJ, Baker SK, Phillips SM. Enhanced Amino Acid Sensitivity of Myofibrillar Protein Synthesis Persists for up to 24 h after Resistance Exercise in Young Men. *J Nutr.* 2011 Apr 1;141(4):568-73, PMID:21289204

Coffey VG, Moore DR, **Burd NA**, Rerecich T, Stellingwerff T, Garnham AP, Phillips SM, Hawley JA. Nutrient provision increases signalling and protein synthesis in human skeletal muscle after repeated sprints. *Eur J Appl Physiol.* 2011 Jul; 111(7):1473-83, PMID:21131864

Staples AW, **Burd NA**, West DW, Currie KD, Atherton PJ, Moore DR, Rennie MJ, Macdonald MJ, Baker SK, Phillips SM. Carbohydrate Does not Augment Exercise-Induced Protein Accretion versus Protein Alone. *Med Sci Sports Exerc.* 2011 Jul; 43(7):1154-61, PMID:2231864

**Burd NA**, West DWD, Staples AW, Atherton PJ, Baker JM, Moore DR, Holwerda AM, Parise G, Rennie MJ, Baker SK, Phillips SM. Low-Load High Volume Resistance Exercise

Stimulates Muscle Protein Synthesis More than High-Load Low Volume Resistance Exercise in Young Men. *PLoSOne*. 2010 Aug 9;5(8):e12033, PMID:20711498

**Burd NA**, Holwerda AM, Selby KC, West DWD, Staples AW, Cain NE, Cashaback JGA, Potvin JR, Baker SK, Phillips SM. Resistance exercise volume affects myofibrillar protein synthesis and anabolic signalling molecule phosphorylation in young men. *J Physiol*. 2010 Aug 15;588(Pt 16):3119-30, PMID:20581041

**Burd NA**, Dickinson JM, Lemoine JK, Carroll CC, Sullivan BE, Haus JM, Jemiolo B, Trappe SW, Hughes GM, Sanders CE Jr, Trappe TA. Effect of a cyclooxygenase-2 inhibitor on postexercise muscle protein synthesis in humans. *Am J Physiol Endocrinol Metab*. 2010 Feb;298(2):E354-61, PMID:19934404

West DW, **Burd NA**, Tang JE, Moore DR, Staples AW, Holwerda AM, Baker SK, Phillips SM. Elevations in ostensibly anabolic hormones with resistance exercise enhance neither training-induced muscle hypertrophy nor strength of the elbow flexors. *J Appl Physiol*. 2010 Jan;108(1):60-7, PMID:19910330

West, W.D., Kujbida, G.W., Moore, D.R., Atherton P., **Burd, N.A.**, Padzik J.P., De Lisio, M., Tang, J.E., Parise, G., Rennie, M.J., Baker, S.K., Phillips S.M. Resistance exercise-induced increases in putative anabolic hormones do not enhance muscle protein synthesis or intracellular signaling in young men. *J Physiol*. 2009 Nov 1;587 (Pt 21):5239-47, PMID:19736298

Moore DR, Tang JE, **Burd NA**, Rerecich T, Tarnopolsky MA, Phillips SM. Differential stimulation of myofibrillar and sarcoplasmic protein synthesis with protein ingestion at rest and after resistance exercise. *J Physiol*. 2009 Feb 15;587(Pt 4):897-904, PMID:19124543

Trappe, T.A., **Burd, N.A.**, Louis, E., Lee, G., and Trappe S. Influence of concurrent exercise or nutrition countermeasures on thigh and calf muscle volume and function during 60 d of bedrest in women. *Acta Physiol (oxf)*. 2007 Oct; 191(2):147-59, PMID:17655736

Weinheimer, E.M., Jemiolo, B., Carroll, C.C., Harber, M., Haus, J.M., **Burd, N.A.**, LeMoine, J.K., Trappe, S., and Trappe, T.A. Resistance exercise and cyclooxygenase (COX) expression in human skeletal muscle: implications for COX-inhibiting drugs and protein synthesis *Am J Physiol Integr Comp Physiol*. 2007 Jun;292(6):R2241-8, PMID:17322116

### **Reviews (Peer-reviewed)**

**Burd NA**, Gorissen SH, van Loon LJC. Anabolic resistance of muscle protein synthesis with aging. *Exerc Sport Sci. Rev*. 2013, PMID:23558692

Churchward-Venne TA, **Burd NA**, Phillips SM. Nutritional regulation of muscle protein synthesis with resistance exercise: strategies to enhance anabolism. *Nutr Metab (Lond)*. 2012 May 7;9(1):40, PMID:22594765

**Burd NA**, Mitchell CJ, Churchward-Venne TA, Phillips SM. Bigger weights may not beget bigger muscles: Evidence from acute muscle protein synthetic responses after resistance exercise. *Applied Physiology, Nutrition, and Metabolism* 2012 April 26, PMID:22533517

**Burd NA** and Phillips SM. Fast whey protein and the leucine trigger affect exercise-induced muscle protein synthesis. *NutraFoods. Special Issue on Whey Proteins*. 2010, 9(4) 7-11

West DWD, **Burd NA**, Staples AW, and Phillips SM. Human skeletal muscle hypertrophy is an intrinsic process. *International Journal of Biochemistry and Cell Biology* 2010 Sep;42(9):1371-5, PMID:20541030

**Burd NA**, Tang JE, Moore DR, Phillips SM. Exercise training and protein metabolism: influences of contraction, protein intake, and sex-based differences. *J Appl Physiol.* 2009 May 106(5):1692-701, PMID:19036897

### **Editorials/Perspectives/Letters (Peer-reviewed)**

**Burd NA**, Stear SJ, Burke LM, Castell LM. A-Z of nutritional supplements: dietary supplements, sports nutrition foods and ergogenic aids for health and performance—Part 47. *Br J Sports Med.* 2013; 47(14); 933-4, PMID:23973882

Ranchordas MK, **Burd NA**, Godfrey RJ, Senchina DS, Stear SJ, Burke LM, Castell LM. A-Z of nutritional supplements: dietary supplements, sports nutrition foods and ergogenic aids for health and performance—Part 43. *Br J Sports Med.* 2013; 47 155-156, PMID:23525752

**Burd NA**, Moore DR, Mitchell CJ, Phillips SM. Big claims for big weights but with little evidence. *Eur J Appl Physiol* 2012, PMID:23086296

**Burd NA**, Wall BT, van Loon LJ. Last word on Viewpoint: The curious case of anabolic resistance: old wives' tales or new fables? 2012 Apr 112(7):1237, PMID:22467757

Lee J and **Burd NA**. No role of muscle satellite cells in hypertrophy: Further evidence of a mistaken identity? *J Physiol* 2012, PMID:22707593

Ranchordas MK, **Burd NA**, Senchina DS, Burke LM, Stear SJ, Castell LM. A-Z of nutritional supplements: dietary supplements, sports nutrition foods and ergogenic aids for health and performance—Part 29. *Br J Sports Med.* 2012; 46 155-156

**Burd NA**, Wall BT, van Loon LJC. The curious case of anabolic resistance: old wives' tales or new fables? *J Appl Physiol.* 2012 Apr 112(7):1233-5, PMID:22134695

**Burd NA**, Jeukendrup A, Reid MB, Burke LM, Stear SJ, Castell LM. A-Z of nutritional supplements: dietary supplements, sports nutrition foods and ergogenic aids for health and performance—Part 26. *Br J Sports Med.* 2011; 45:1163-1164

**Burd NA**, West DW, Camera DM, Breen L. No role for early IGF-1 signalling in stimulating acute 'muscle building' responses. *J Physiol.* 2011 June 1;589(Pt 11):2667-8, PMID:21632529

**Burd NA**, West DWD, Churchward-Venne TA, Mitchell CJ. Growing collagen, not muscle, with weightlifting and 'growth' hormone. *J Physiol.* 2010 Feb 1;588(Pt 3):395-6, PMID:20123793

Moore DR, **Burd NA**. Exercise intensity matters for both young and old muscles. *J Physiol.* 2009 Feb 1;587(Pt 3):511-2, PMID:190749

**BOOK CHAPTERS (Peer-reviewed)**

**Nicholas A. Burd** and Stuart Phillips. Chapter 3: Protein and exercise. In Sports Nutrition: A manual for Professionals 5<sup>th</sup> Edition; Academy of Nutrition and Dietetics, 2012, ISBN:978-0-88091-452-1

**Nicholas A. Burd** and Stuart Phillips. Chapter 11: Nutrition for Power and Sprint Training. In Sport and Exercise Nutrition. The Nutrition Society Textbook Series. 2011, ISBN-13:978-1-4443-3468

**TEACHING**

2013 - Instructor, Department of Kinesiology and Community Health, University of Illinois at Urbana-Champaign. Course: Nutrition for sport and exercise.

**SELECTED PUBLISHED ABSTRACTS**

**Burd NA**, Lee G, Trappe S, Trappe T. Influence of exercise or nutrition countermeasures during 60 d of bedrest in women: Thigh and calf muscle volume. The FASEB Journal (2006)

Trappe T, Tesch P, Alkner B, **Burd NA**, Trappe S. Gender specific changes in muscle mass with long-term bedrest. The FASEB Journal (2006)

**Burd NA**, Dickinson JM, LeMoine JK, Carroll CC, Haus JM, Hughes G, Sanders C Jr, Trappe TA. Consumption of a COX-2 inhibitor stimulates muscle protein synthesis after resistance exercise in humans. The FASEB Journal. 2008;22:958.15.

**Burd NA**, Staples AW, West DW, Moore DR, Holwerda AM, Baker SK, Phillips SM. Latent increases in fasting and fed-state muscle protein turnover with resistance exercise irrespective of exercise intensity. Appl Physiol Nutr Metab. 2009, Dec;34(6): S19.

**Burd NA**, West DWD, Staples AW, Holwerda AM, Moore DR, Tang JE, Baker SK, Phillips SM. Influence of muscle contraction intensity and fatigue on muscle protein synthesis following resistance exercise. In: Med. Sci. Sports Exerc., Supplement no. 5 Vol. 41 May 27-30, 2009 Abstract no. 1016, p. S111

**Burd NA**, Holwerda AM, Selby KC, Staples AW, Cain N, West DW, Baker SK, Phillips SM. Resistance exercise-induced increases in myofibrillar protein synthesis and p70S6K phosphorylation are greater after three sets versus one set in young men. Proc Physiol Soc. 2010, 19 C105.

Andrews RJ, **Burd NA**, Hector AJ, Baker SK, Phillips SM. Anabolic signaling with low-intensity resistance exercise performed with high and low time under tension in young men. Appl Physiol Nutr Metab. 2010, Dec; 35(6): S3.

West DW, **Burd NA**, Coffey VG, Staples AW, Baker SK, Burke LM, Hawley JA, Phillips SM. Bolus protein feeding is more beneficial than pulse feeding for enhancing myofibrillar protein synthesis. Appl Physiol Nutr Metab. 2010, Dec; 35(6): S109

Holwerda AM, **Burd NA**, Selby KC, West DW, Staples AW, Cain NE, Cashaback J, Potvin JR, Baker SK, Phillips SM. Three sets of resistance exercise elicit a greater elevation in

myofibrillar protein synthesis than 1 set of resistance exercise in young men. *Appl Physiol Nutr Metab.* 2010, Dec; 35(6): S42.

**Burd NA**, West DW, Staples AW, Atherton PJ, Moore DR, Prior T, Tang MJ, Rennie MJ, Baker SK, Phillips SM. The latent resistance exercise and feeding interaction to stimulate myofibrillar protein synthesis post-exercise is dependent on effort. *Appl Physiol Nutr Metab.* 2010, Dec; 35(6): S12.

**Burd NA**, West DWD, Little JP, Gibala MJ, Baker SK, and Phillips SM. Low-intensity resistance exercise stimulates mitochondria protein synthesis and PGC-1 $\alpha$  mRNA expression. *Med. Sci. Sports Exerc.* 43(5, Suppl 1): 41, 2011.

## JOURNAL REVIEWER

The Journal of Physiology  
 The Journal of Applied Physiology  
 American Journal of Physiology: Endocrinology & Metabolism  
 Clinical Nutrition  
 Medicine and Science in Sports and Exercise  
 Scandinavian Journal of Medicine & Science in Sports  
 International Journal of Sport Nutrition and Exercise Metabolism  
 Journal of Sport Sciences  
 Nutrition & Metabolism  
 Nutrition Research  
 British Journal of Nutrition  
 Medicina Sportiva  
 American Journal of Clinical Nutrition  
 PlosOne  
 Experimental Gerontology  
 Sports Medicine

## INVITED SPEAKER

**Nicholas Burd.** “Does chronically consuming protein immediately after exercise actually cause you to get strong (resistance training) or faster (endurance training)?” American College of Sports Medicine (ACSM). May 28-June 1, 2013; Indianapolis, Indiana USA

**Nicholas Burd.** The effect of resistive exercise on muscle carbohydrate and protein metabolism. In symposium: “Acute and chronic responses to concentric and eccentric exercise”. American College of Sports Medicine (ACSM). May 28-June 1, 2013; Indianapolis, Indiana USA

**Nicholas Burd.** Contraction induced changes in muscle protein synthesis—Does exercise load matter? In symposium: “Sensing the tension: Identifying Mechanotransducers that Regulate Muscle Growth”. American College of Sports Medicine (ACSM). May 28-June 1, 2013; Indianapolis, Indiana USA

**Nicholas Burd.** Protein intake – before, during, or after to enhance endurance and strength training adaptations. Danish Sports Medicine Congress. Invited lecture. Jan 31 – Feb 2, 2013; Kolding, Denmark

**Nicholas Burd.** Protein and recovery from exercise – Are guidelines the same for all sorts of exercise? American College of Sports Medicine (ACSM), invited lecture. May 30 2012, San Francisco, California USA

**Nicholas Burd.** Contractile and nutritional modulation of human skeletal muscle protein synthesis. In the masterclass for Prof. dr. Alfred Goldberg, Striated muscle plasticity and metabolism in health and disease, Maastricht University, January 16, 2012, Maastricht, Netherlands

**Nicholas Burd.** Impact of resistance exercise intensity on human skeletal muscle protein synthesis. Department of kinesiology seminar, McMaster University, October 22, 2009, Hamilton, ON, CA

**Nicholas Burd.** Impact of resistance exercise intensity and anabolic hormones on human skeletal muscle protein turnover. Department of Sport & Exercise Science Research seminar, University of Auckland, Tamaki Campus, October 9 2009, Auckland, NZ

**Nicholas A. Burd,** Daniel WD West, and Stuart M. Phillips. Scientific update related to resistance exercise intensity and protein dose effects on human skeletal muscle. Sobre Entrenamiento Group Symposium. Online symposium. June 15, 2009

### **GRANTS and AWARDS**

2011 ACSM Charles M. Tipton National Student Research Award

The Physiological Society Travel Grant. 2010  
Awarded: £ 500

McMaster University School of Graduate Studies International Excellence Award 2010.  
Awarded: 10,000 CAD