Welcome to the COPE Webinar Series
for Health Professionals!

November 9, 2016
The PRISE Protocol for Optimal Health and Performance

Moderator: Lisa Diewald, MS, RD, LDN
Program Manager
MacDonald Center for Obesity Prevention & Education

Handouts of the slides are posted at: www.villanova.edu/COPE

Welcome to the COPE Webinar Series
for Health Professionals!

• Enhance Education
• Participate in Research
• Partner with agencies and organizations
• Provide Continuing Education
• Enhance Education

MacDonald Center for Obesity Prevention and Education (COPE)
Goals

The PRISE Protocol for Optimal Health and Performance

Objectives:
1. Identify the leading lifestyle-related diseases
2. Explain the limitations of the current exercise and nutrition recommendations
3. Describe the evidence-based exercise, nutrition and mind/body strategies necessary to enhance health and physical performance in individuals across the age and fitness/health spectrum
Notice:

- Villanova University College of Nursing is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center Commission on Accreditation.
- Villanova University College of Nursing Continuing Education/COPE is a Continuing Professional Education (CPE) Accredited Provider with the Commission on Dietetic Registration.
- The American College of Sports Medicine’s Professional Education Committee certifies that Villanova University College of Nursing Continuing Education, Center for Obesity Prevention and Education (COPE) meets the criteria for official ACSM Approved Provider status (2015-December, 2018). Providership #698849.

Credits:

- This webinar awards 1 CPEU for dietitians.
- Suggested CDR Learning Need Codes: 2000, 4066, 9020, 5370, Level 2.

The PRISE Protocol for Optimal Health and Performance

Paul J. Arciero FACSM, FTOH
Professor, Health and Sciences Department
Director, Human Nutrition and Metabolism Laboratory
Owner, PRISE LLC and GenioFit™
DISCLOSURE

The planners have no disclosures to report.

The presenter discloses that he is CEO and President of PRISE LLC

Accredited status does not imply endorsement by Villanova University, COPE or the American Nurses Credentialing Center of any commercial products or medical/nutrition advice displayed in conjunction with an activity.

The PRISE Protocol for Optimal Health and Performance

DR. PAUL J. ARCIERO, FACSM, FTOS
Professor & Director, Human Nutrition and Metabolism Lab Skidmore College
President & CEO, PRISE LLC (www.GenioFit.com)

The PRISE Protocol

A. Barriers to Optimal Health & Performance
   A. Nutrition Recommendations
   B. Exercise Guidelines
B. “First Strike” of Optimal Health = Healthy Weight Loss
C. PRISE Protocol
D. Live it…
A. Barriers to Optimal Health & Performance

Excuses...

• I'm Too:
  – Busy... No Time!
  – Tired
  – Old
  – Out of shape and overweight
  – Achy
• I don’t like exercising...
  – Too boring
  – No confidence, don’t like gyms

Genes... 😞

*Only accounts for ~40% of risk*
TOXIC ENVIRONMENT

WHY IS IT SO DIFFICULT TO BE FIT AND HEALTHY?

EATING TOO MUCH
• Calorie intake has increased ~250 calories/day

[Graph showing daily energy intake (kcal) across BMI categories: ALL, NW, OW, OB.]


CARB ADDICTS

[Graph showing % calorie carbohydrates across BMI categories: ALL, NW, OW, OB.]

PROTEIN-DEPLETED


Only in America...

Google.com

ALMOST 10% OF THE YEAR IS SPENT WATCHING TV
Sitting... the new smoking

• Sitting for >6 hrs per day:
  – 68% greater risk of being overweight/obese
  – Total sitting time = increased BMI
  – Men sit ~20 min longer per day than women


The PRISE Protocol

A. Barriers to Optimal Health & Performance
   A. Nutrition Recommendations
   B. Exercise Guidelines
B. “First Strike” of Optimal Health = Healthy Weight Loss
C. PRISE Protocol
D. Live it...

Nutrition Recommendations

• USDA

ChooseMyPlate.gov
Still more competition...

Exercise Recommendations - ACSM

Cardio:
30-60 min mod-intensity 5 days/wk or 20-60 min vigorous-intensity 3 days/week (~4 hrs/week)

Resistance:
2-4 sets, 8-20 repetitions 2-3 days/week (~3 hrs/week)

Flexibility:
2-4 sets, 60 sec/stretch at least 2-3 days/week (~3 hrs/week)

Neuromotor (functional mvt; balance; agility):
20-30 min/day, 2-3 days/week (~1.5 hrs/week)

9-12 hours a week of Exercise! = 1 ½ hrs everyday!

Less than 20% of Americans meet these recommendations!!
Burned out...

The PRISE Protocol

A. Barriers to Optimal Health & Performance
   A. Nutrition Recommendations
   B. Exercise Guidelines
B. “First Strike” of Optimal Health = Healthy Weight Loss
C. PRISE Protocol
D. Live it...
Our Best Defense Doesn’t Work

Google.com

Led to believe it’s this easy...

Goal

- New Paradigm of Nutrition and Fitness Training
- Time Efficient (only 4 days per week of hour or less)
- Emphasizes Quality over Quantity
- Scientifically validated and tested
Our Guiding Principal

SIMPLICITY IS THE ULTIMATE FORM OF SOPHISTICATION

~ Leonardo da Vinci

PRISE Protocol

P - PROTEIN-PACING
R - RESISTANCE
I - INTERVAL
S - STRETCHING
E - ENDURANCE

The PRISE Protocol Exceeds Scientific Benchmarks

- 10 lb weight loss reduces diabetes risk by 58% (NEJM, 2002)
- Reducing waist circumference by ≥ 5cm results in a 10% improvements in at least one cardiometabolic risk factor (JIO, 1997)
- A 10% reduction in total cholesterol reduces coronary heart disease by 30% (AAM, Cohan JD, 1997)
- A 12 point reduction in Systolic Blood Pressure reduces cardiovascular disease risk by 25% (AAM, 1999)
- Blood glucose (sugar) of 84 mg/dl or < associated with reduced CVD. (Diabetes Care, 1999)
- PRISE results in ≥ 8cm reduction in waist circumference 105 to 94 cm
- PRISE reduces total cholesterol by ≥ 21% from 192 to 151 mg/dL
- PRISE reduces SBP by 14 points from 130 to 116 mm/Hg
- PRISE reduces blood sugar by 98 to 84 mg/dL
PRISE 1

Timed-daily ingestion of whey protein and exercise training reduces visceral adipose tissue mass and improves insulin resistance: the PRISE study


PROTEIN-PACING

3 Trials of 80 grams of Protein:
1) Bolus – 2 X 40 g every 6 hrs
2) Intermediate – 4 X 20 g every 3 hrs
3) Pulse – 8 X 10 g every 1.5 hrs

Acknowledgement from Scientific Community and Popular Press
PRISE Protocol

Resistance Training  →  Protein-Pacing  →  Endurance Training

Interval Training  →  Stretching/Restorative Training

Physical Characteristics

<table>
<thead>
<tr>
<th></th>
<th>P</th>
<th>P + RT</th>
<th>PRISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, M/F</td>
<td>7/11</td>
<td>5/17</td>
<td>9/8</td>
</tr>
<tr>
<td>Age, yr</td>
<td>50 ± 2</td>
<td>47 ± 1</td>
<td>52 ± 1</td>
</tr>
<tr>
<td>Height, cm</td>
<td>172 ± 2</td>
<td>167 ± 2</td>
<td>177 ± 2</td>
</tr>
<tr>
<td>Weight, kg</td>
<td>83 ± 3</td>
<td>83 ± 5</td>
<td>88 ± 4</td>
</tr>
<tr>
<td>Body fat, %</td>
<td>35 ± 2</td>
<td>40 ± 1</td>
<td>34 ± 2</td>
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<tr>
<td>Body mass index</td>
<td>28 ± 1</td>
<td>29 ± 1</td>
<td>28 ± 1</td>
</tr>
<tr>
<td>Heart rate, beats/min</td>
<td>67 ± 3</td>
<td>69 ± 2</td>
<td>61 ± 2</td>
</tr>
</tbody>
</table>

Body Composition
PRISE 2

Protein-Pacing from Food or Supplementation Improves Physical Performance in Overweight Men and Women: The PRISE 2 Study


Human Nutrition and Metabolism Laboratory, Department of Health and Exercise Sciences, Skidmore College, Saratoga Springs, NY 12866, USA; robcarlson@skidmore.edu (R.C.E.); ckernel@skidmore.edu (C.K.); claris@skidmore.edu (C.D.); marielle.p.moore@gmail.com (M.R.); qianzheng@skidmore.edu (Q.Z.); junzhu.chang@gmail.com (J.Z.).
4 Month Study

<table>
<thead>
<tr>
<th></th>
<th>WP</th>
<th>FP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (M/F)</td>
<td>4/5</td>
<td>7/5</td>
</tr>
<tr>
<td>Age (yr)</td>
<td>48 ± 4</td>
<td>52 ± 1</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>173 ± 3</td>
<td>172 ± 3</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>96 ± 3</td>
<td>97 ± 5</td>
</tr>
<tr>
<td>Body mass index</td>
<td>32 ± 2</td>
<td>33 ± 1</td>
</tr>
</tbody>
</table>

6 Protein-paced meals/day
- Whey Protein (WP): 2-3 servings/day
- Food Protein (FP): high quality food only

STRENGTH!

MUSCULAR ENDURANCE
### BALANCE & FLEXIBILITY

![Graph showing balance and flexibility metrics](image)

### MUSCLE MASS

![Graph showing muscle mass metrics](image)

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**Sample Menus from the FP and WP nutritional intervention diet plans during the 16 week PRE period intervention.**

<table>
<thead>
<tr>
<th>Meal</th>
<th>FP Menu</th>
<th>WP Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
<td>Eggo egg whites, steel cut oats, olive oil, honey, oat bran, milk, fruit, tea, coffee</td>
<td>Whey Protein (WP)</td>
</tr>
<tr>
<td><strong>Mid-morning snack</strong></td>
<td>Food Protein Snack: Greek yogurt, fresh fruit, nuts</td>
<td>Whey Protein Shake: 1 scoop whey protein, fresh fruit, nuts</td>
</tr>
<tr>
<td>Lunch</td>
<td>Fish/poultry/bread, spinach, olive oil, honey mustard, baby carrots, bell peppers, dried cranberries, dried fruit, whole grain pita</td>
<td>Fish/poultry/bread, spinach, olive oil, honey mustard, baby carrots, bell peppers, dried cranberries, dried fruit, whole grain pita</td>
</tr>
<tr>
<td><strong>Mid-afternoon snack</strong></td>
<td>Fresh vegetables, nuts</td>
<td>Fresh vegetables, nuts</td>
</tr>
<tr>
<td>Dinner</td>
<td>Fish/poultry/bread, whole grain rice/pasta or legumes, field greens, tomato, broccoli, chopped nuts, dried fruit, olive oil, milk</td>
<td>Fish/poultry/bread, whole grain rice/pasta or legumes, field greens, tomato, broccoli, chopped nuts, dried fruit, olive oil, milk</td>
</tr>
<tr>
<td><strong>Evening snack</strong></td>
<td>Food Protein Snack: Greek yogurt/cottage cheese, fresh fruit, nuts</td>
<td>Whey Protein Shake: 1 scoop whey protein, Ethan snacks, fresh fruit, nuts</td>
</tr>
</tbody>
</table>

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PRIZE 3

Article
Protein-Pacing and Multi-Component Exercise Training Improves Physical Performance Outcomes in Exercise-Trained Women: The PRIZE 3 Study†

Paul J. Ariciu 1,*, Stephen J. Ives 1, Chelsea Norton 1, Daniella Everdell 1, Olivia Mistracello 1, Gabe O’Brien 1, Maia Paul 1, Michael J. Osmose 2, Vincent Miller 3, Caitlin Sheridan 3 and Feng Xu 1, 2, 3

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2 Department of Nutrition and Health Sciences, Faculty of Agriculture, Veterinary and Life Sciences, University of Glasgow, Glasgow G12 8QQ, UK; rita.zoccola@glasgow.ac.uk (R.Z.)

3 School of Human Nutrition, University of Florida, Gainesville, FL 32611, USA; jingweiwei@ufl.edu (J.W.)

† These authors contributed equally to this work.

Trained Women (≥X/week)
25-50 yrs old

MUSCULAR ENDURANCE

11/9/2016
Table 3. Sample Menus from the CON and PRISE enrichment intervention diet plans during the 2-week intervention. Menus were identical in size and in need timing.

<table>
<thead>
<tr>
<th></th>
<th>CON (1.0 g/kg BW/day)</th>
<th>PRISE (2.0 g/kg BW/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Steel cut oats, eggs, honey, oatmeal bars, fruit, coffee/teas, cereal bars, eggs, cheese, toast, yogurt, tea</td>
<td>eggs, eggs, blueberries, coconut flakes, milk, 1% caffeine beverages, angel food,innacle, 25 g protein, 15 g carbohydrate, 15 g fat</td>
</tr>
<tr>
<td><strong>Mid-morning snack</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Norton Valley Peanut Butter, 10 g protein, 14 g carbohydrate, 12 g fat</td>
<td>IsiPrep, 1.5 scoops, fresh fruit, 25 g protein, 2 g carbohydrate, 1.5 g fat</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td>Whole grain rice, two turkey/salmon, baked rolls, fresh fruit, 15 g protein, 10 g carbohydrate, 10 g fat</td>
<td>IsiPrep, 10 g protein, 2 g carbohydrate, 10 g fat</td>
</tr>
<tr>
<td><strong>Mid-Afternoon snack</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Norton Valley Sweet and zesty Granola Bar, Frozen Granola Multifruit, 12 g protein, 14 g carbohydrate, 5 g fat</td>
<td>IsiPrep, 1 cup yogurt or fresh fruit, 10 g protein, 10 g carbohydrate, 5 g fat</td>
</tr>
<tr>
<td><strong>Dinner</strong></td>
<td>Chicken/ground beef, mixed greens/pasta/veggies, fresh vegetables, dried fruit, olive oil, wine, 15 g protein, 10 g carbohydrate, 15 g fat</td>
<td>Chicken/ground beef, fresh vegetables, chopped nuts, dried fruit, olive oil, milk, 25 g protein, 10 g carbohydrate, 15 g fat</td>
</tr>
<tr>
<td><strong>Evening snack</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fresh fruit, 2 g protein, 20 g carbohydrates, 5 g fat</td>
<td>Greek yogurt, fresh, frozen blueberries, 2 g protein, 20 g carbohydrate, 5 g fat</td>
</tr>
</tbody>
</table>

**Exercise Days**
- Otago GOR, Electrolite beverage
- Otago GOR, Electrolite beverage

**CON** protein based on 0.6 g/kg BW/day for 64 kg women, **PRISE** protein based on 1.2 g/kg BW/day for 64 kg women. Meals were consumed - 3 hours apart throughout the day.

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**PRISE 4**

Multi-modal exercise training and protein-pacing enhances physical performance adaptations independent of growth hormone and IGF but may be dependent on IGF-1 in exercise-trained men.


---

**Trained men**
- 4×X/week
- 25-55 yrs old
Table A1: Sample menus from the RISE and PRISE nutritional intervention diet plans during the 12 week intervention. Menus were isocaloric and similar in meal timing.

<table>
<thead>
<tr>
<th></th>
<th>RISE (1.0 g/kg BW/day)</th>
<th>PRISE (2.0 g/kg BW/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature Valley Protein Chewy Barféll</td>
<td>Steel cut oats, eggs, honey, nut/sweet butter, fruit, coffee/tea beverage, One-A-Day Multivitamins®; 15 g protein; 30 g carbohydrate; 15 g fat</td>
<td>IsaPro; fresh fruit; 30 g protein; 3 g carbohydrate; 1.5 g fat</td>
</tr>
<tr>
<td><strong>Mid-morning snack</strong></td>
<td>Nature Valley Protein Chewy Barféll</td>
<td>Whole grain pita, tuna/turkey/chicken, baked chips, fresh fruit; 20 g protein; 30 g carbohydrate; 15 g fat</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
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<tr>
<td>Nature Valley Sweet and Salty Nut Granola Barféll; Horizon Organic Milk®; 12 g protein; 42 g carbohydrate; 15 g fat</td>
<td>IsaLean Barféll; 1/2 cup of Greek yogurt or fruit</td>
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<tr>
<td><strong>Dinner</strong></td>
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<tr>
<td>Fresh fruit, nuts, 2–3 g protein; 20 g carbohydrate; 9 g fat</td>
<td>Greek yogurt, fruit, Ionix Supreme®; 20 g protein; 20 g carbohydrate; 5 g fat</td>
<td></td>
</tr>
<tr>
<td><strong>Evening snack</strong></td>
<td>Fresh fruit, nuts, 2–3 g protein; 20 g carbohydrate; 9 g fat</td>
<td>Greek yogurt, fruit, Ionix Supreme®; 20 g protein; 20 g carbohydrate; 5 g fat</td>
</tr>
<tr>
<td><strong>Exercise days</strong></td>
<td>Gatorade G2®, electrolyte beverage</td>
<td>Gatorade G2®, electrolyte beverage</td>
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</table>

**PRISE Routine**

<table>
<thead>
<tr>
<th>Exercise Type</th>
<th>Work</th>
<th>MN</th>
<th>SD</th>
<th>B/C</th>
<th>M</th>
<th>M/F</th>
<th>E/F</th>
<th>O/F</th>
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<tbody>
<tr>
<td>RISE</td>
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</table>
Summary

• Current Nutrition and Exercise Guidelines are difficult to meet.
• Need for a feasible, realistic and evidence-based lifestyle.
• PRISE – Scientifically proven in obese fit to improve:
  • Body composition
  • Cardiometabolic health
  • Performance
• Available in mobile App

FUTURE of PRISE...

“...To Infinity and Beyond”

Mobile App
(www.GenioFit.com)
MANY THANKS!

**Students:**
- Jun Qiu, Zheng, Qian Zheng, Chris Darin, Cali Keeshin, Mandy Burnawat, Emery Ward, Max Ruby, Michael Smith, Jason Jennings, Markus Rosen, Jake Meindl, Sean Bird, Elize Smit, Nick Chiver, Jake Bonner, Matthew Haddad, Billy Bohlander, Dave Rink, Sam Hume, whiskey, Paul Waite, Devan Koenig, Ryan Vink, Roger Martin-Preussman, Jason Santamaria, Jason Honey, Jeff Martin, Lisa Gorman, Chris Garst, Anthony Brooks, Neisha Jones, Benjamin Young, Lauren Ruch, Kyle Bowers, Rachel Tempo, Ryan Kiel, Ryan Quigly, David Pichov, Nat Elrod, Matt Tiede, Karisa Erickson, Lauren Kezar, Tamaris Anderson, Kyla McAvoy, Austin Bailey, Jennifer Brewer, Joshua Hines, Jack Ziesse, Ben Hines, Noelle Morris, Nataly Marfin, Kate Roth, Daniel Elsbergen, Kevin Brits, Lash Glideman

**Colleagues:**

**Supporters:**

**All the research volunteers and clients**

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**References**


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• Deep within humans dwell those slumbering powers: powers that would astonish them, that they never dreamed of possessing: forces that would revolutionize their lives if aroused and put into action.

Orison Marden
LIVE IT!
PRISE IN PRACTICE

Arciero teams with brother to get 3rd in National Over-50 event

Paul Arciero, left, of Saratoga Springs and a professor at Skidmore, and his brother, John Arciero, of Matthews, N.C., after they placed third in the National Over-50 Grass Court Championships at Germantown Cricket Club in Philadelphia.

Evaluations and CE Certificates

• Those dietitians requesting CPEU credit who have completed the webinar will be emailed a link to the evaluation within a week.

• The email will be sent to the email address that you used to register for the webinar.

• Complete the evaluation soon after you receive the email. The evaluation does expire after 3 weeks. Once expired, you cannot obtain a certificate.

• Once the evaluation is completed, the CE certificate will be emailed separately within 2 or 3 business days.

Upcoming FREE Continuing Education Webinar

Jeremy Clorfone Ph.D.
Head Psychologist
Advocate Weight Management Program

Title: Utilizing Social and Cognitive Psychology for Improving Obesity Treatment
Date: Wednesday, December 7, 2016
Time: 12:00PM-1 PM EDT

Register at villanova.edu/cope
Questions and Answers!

Moderator: Lisa K. Cleland MS, RD, LDN
Email: cope@villanova.edu
Web site: www.villanova.edu/COPE

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Thank you for your time and interest.