Curriculum Vitae

Jun Seok Son, Ph.D.

Assistant Professor, Laboratory of Perinatal Kinesioepigenetics, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Maryland School of Medicine

Date Dec. 01, 2021

Contact Information

Mailing Address: Laboratory of Perinatal Kinesioepigenetics
Department of Obstetrics, Gynecology and Reproductive Sciences
655 W. Baltimore Street, Room #11-009
Baltimore, MD 21201
Phone (410) 706-3031
Email: junseok.son@som.umaryland.edu
Languages: English/Korean

Education

2012 **B.S.** in Physical Education (Kinesiology)
Korea National Sport University, Seoul, Republic of Korea

2016 **M.S.** in Sport Science (***Advisor: prof. Wook Song***)
Seoul National University, Seoul, Republic of Korea
(Emphasis: *Exercise Physiology*)
Thesis: *Resistance training attenuates the increase of skeletal muscle SPARC level in hindlimb immobilized rats*

2020 **Ph.D.** in Animal Sciences (***Advisor: prof. Min Du***)
Washington State University, Pullman, WA 99164, USA
(Emphasis: *Nutrigenomics and Growth Biology*)
Dissertation: *Exercise-induced hormone, apelin, in mediating fetal muscle and adipose development*

Post Graduate Education and Training

2020-2021 Postdoctoral Research Associate, Department of Animal Sciences, School of Molecular Biosciences, Washington State University, Pullman, WA 99164, USA (***Mentor: prof. Min Du***)

Academic Appointments

2021-present Assistant Professor, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Maryland School of Medicine

2021-present	Lab Head, Laboratory of Perinatal Kinesioepigenetics, Division of Applied Perinatal Research, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Maryland School of Medicine
2021-present	Assistant Professor (secondary appointment), Department of Physiology, University of Maryland School of Medicine

Professional Society Memberships

2019-present	Member, the American Physiological Society (APS)
2018-present	Member, the Society for the Study of Reproduction (SSR)
2018-present	Member, the American College of Sports Medicine (ACSM)
2016-present	Member, the European College of Sport Science (ECSS)
2013-present	Member, the Korea Society for Exercise Nutrition
2013-present	Member, the Korea Society of Exercise Physiology

Honors and Awards

0000

Administrative Service

0000-0000	000

Activity (Editorial board)

2019-present	Reviewer, Journal of Strength and Conditioning Research
2020-present	Reviewer, Diabetes, Obesity and Metabolism

Teaching Service

2014 Fall	Teaching Assistant, Exercise Physiology, Seoul National University
2017-2020	Lecturer, Exercise protocol and principles for using small animals, Washington State University

List of Mentees

Graduate Students

0000-0000	000

Grant Support

Active Grants

0000-0000 000

Pending Grants

07/01/22-06/30/27 Junseok Son (PI)
"Novel Mechanisms for Exercise Training Effects on Placental Development"
NIH/1R01HD109219-01
Total Costs: $1,931,250

03/01/22-02/29/24 Junseok Son (PI)
Jae Kun Shim (PI)
"A Medical and Motor Neuroscience Investigation into the Relationship Between Inflammation in Pregnancy and Offspring Brain Health"
MPower Seed Grant Challenge
Total Costs: $250,000

Publications (Peer-reviewed journal articles)

1. Hee-Jae Kim[#], Dong Hyun Yoon, Byunghun So, **Jun Seok Son**, Han Sol Song, Dae Young Kim, Su Seeung Hwang, Min-Ji Kang, Dong Won Lee, Gayoung Han and Wook Song[*], "Practical application of resistance exercise for prevention of sarcopenia" *Journal of the Korean Geriatrics Society* **2015** (Dec 31), *19(4)*, 205-217.

2. Hee-Jae Kim[#], Byunghun So, **Jun Seok Son**, Han Sol Song, Seung Lyul Oh, Je Kyung Seong, Hoyoung Lee and Wook Song[*], "Resistance training inhibits the elevation of skeletal muscle derived-BDNF level concomitant with improvement of muscle strength in zucker diabetic rat" *Journal of Exercise Nutrition & Biochemistry* **2015** (Dec 31), *19(4)*, 281-288.

3. **Jun Seok Son**[#], Dongheon Kang, Dong Hyun Yoon, Dae-Young Kim, Hee-Jae Kim, Jang Hoe Kim, Byunghun So, Han Sol Song, Su Seung Hwang and Wook Song[*], "Effects of high-speed elastic band training on physical fitness and muscle function in rural community-dwelling elderly: a single-blinded randomized controlled trial" *Korean Journal of Health Promotion* **2015** (Dec 31), *15(4)*, 254-261.

4. Dong Hyun Yoon[#], Han Sol Song, Su Seung Hwang, **Jun Seok Son**, Dae-Young Kim and Wook Song[*], "The effect of circuit training and workplace improvement program on the prevention of metabolic syndrome and the improvement of physical function in office workers" *Korean Journal of Health Promotion* **2016** (Jun 30), *16(2)*, 134-143.

5. Hee-Jae Kim[#], **Jun Seok Son**, Eunhee Jin, Jin Lee and Sok Park[*], "Effects of exercise and L-arginine intake on inflammation in aorta of high-fat diet induced obese rats" *Journal of Exercise Nutrition & Biochemistry* **2016** (Mar 31), *20(1)*, 36-40.

6. Jong Cheol Lee[#], Il Yong Kim, Yeri Son, Seul Kee Byeon, Dong Hyun Yoon, **Jun Seok Son**, Han Sol Song, Wook Song, Je Kyung Seong[*] and Myeong Hee Moon[*], "Evaluation of treadmill exercise effect on muscular lipid profiles of diabetic fatty rats by nanoflow liquid

chromatography-tandem mass spectrometry" *Scientific Reports* **2016** (Jul 8), *6*:29617. (**IF** = 5.578)

7. Hee-Jae Kim[#], Hyo-Joo Lee, Byunghun So, **Jun Seok Son**, Donghyun Yoon and Wook Song[*], "Effect of aerobic training and resistance training on circulating irisin level and their association with change of body composition in overweight/obese adults: a pilot study" *Physiological Research* **2016** (Jun 20), *65(2)*, 271-279. (**IF** = 1.293)

8. **Jun Seok Son**[#], Jang Hoe Kim, Hee-Jae Kim, Dong Hyun Yoon, Jin-Soo Kim, Han Sol Song and Wook Song[*], "Effect of resistance ladder training on sparc expression in skeletal muscle of hindlimb immobilized rats" *Muscle and Nerve,* **2016** (Jun 1), *53(6)*, 951-957. (**IF** = 2.283)

9. **Jun Seok Son**[#], Hee-Jae Kim, Yeri Son, Hojun Lee, Song Ah Chae, Je Kyung Seong and Wook Song[*], "Effects of exercise-induced apelin levels on skeletal muscle and their capillarization in type 2 diabetic rats" *Muscle and Nerve,* **2017** (Dec 1), *56(6)*, 1155-1163. (**IF** = 2.713)

10. **Jun Seok Son**[#], Song Ah Chae[#], Eric D. Testroet, Min Du[*] and Hyung-pil Jun[*], "Exercise-induced myokines: A brief review of controversial issues of this decade" *Expert Review of Endocrinology & Metabolism* **2018** (Jan 1), *13(1)*, 51-58.

11. **Jun Seok Son**[#], Song Ah Chae, Byung Ik Park, Min Du[*] and Wook Song[*], "Plasma apelin levels in overweight/obese adults following a single bout of exhaustive exercise: A preliminary cross-sectional study" *Endocrinologia Diabetes y Nutricion* **2019** (May 1), *66(5)*, 278-290. (**IF** = 1.180)

12. **Jun Seok Son**[#], Xiangdong Liu, Qiyu Tian, Liang Zhao, Yanting Chen, Yun Hu, Song Ah Chae, Jeanene M. de Avila, Mei-Jun Zhu and Min Du[*], "Exercise prevents the adverse effects of maternal obesity on placental vascularization and fetal growth" *Journal of Physiology-London* **2019** (Jul 1), *597(13)*, 3333-3347. (**IF** = 4.540)

13. **Jun Seok Son**[#], Liang Zhao, Yanting Chen, Ke Chen, Song Ah Chae, Jeanene M. de Avila, Hongyang Wang, Mei-Jun Zhu, Zhihua Jiang and Min Du[*], "Maternal exercise via exerkine apelin enhances brown adipogenesis and prevents metabolic dysfunction in offspring mice" *Science Advances* **2020** (Apr 17), *6(16)*, eaaz0359. (**IF** = 13.117) This paper was featured by NIH (https://www.nichd.nih.gov/newsroom/news/042320-pregnancy-exercise) and received wide news coverage.

14. Yan-Ting Chen[#], Yun Hu, Qi-Yuan Yang, **Jun Seok Son**, Xiang-Dong Liu, Jeanene M. de Avila, Mei-Jun Zhu and Min Du[*], "Excessive glucocorticoids during pregnancy impair fetal brown fat development and predisposes offspring to metabolic dysfunctions" *Diabetes* **2020** (Aug 1), *69(8)*, 1662-1674. (**IF** = 7.720)

15. Liang Zhao[#], **Jun Seok Son**, Bo Wang, Qiyu Tian, Yanting Chen, Xiangdong Liu, Jeanene M. de Avila, Mei-Jun Zhu, Min Du[*], "Retinoic acid signaling in fibro/adipogenic progenitors robustly enhances muscle regeneration" *EBioMedicine* **2020** (Oct 1), *60*, 103020. (**IF** = 5.736)

16. **Jun Seok Son**[#], Song Ah Chae, Hongyang Wang, Yanting Chen, Alejandro Bravo Iniguez, Jeanene M. de Avila, Zhihua Jiang, Mei-Jun Zhu and Min Du[*], "Maternal inactivity programs skeletal muscle dysfunction in offspring mice via attenuating apelin signaling and mitochondrial biogenesis" *Cell Reports* **2020** (Dec 1), *33(9)*, 108461. (**IF** = 8.109)

17. Song Ah Chae[#], **Jun Seok Son**, Mei-Jun Zhu, Jeanene M. de Avila and Min Du[*], "Treadmill running of mouse as a model for studying influence of maternal exercise on offspring" *Bio-Protocol* **2020** (Dec 5), *10(23)*, e3838.

18. Yan-Ting Chen[#], Yun Hu, Qi-Yuan Yang, Xiang-Dong Liu, **Jun Seok Son**, Jeanene M. de Avila, Mei-Jun Zhu and Min Du[*], "Embryonic exposure to hyper glucocorticoids suppresses brown fat development and thermogenesis via REDD1" *Science Bulletin* **2021** (Mar 15), *66(5)*, 478-489 (**IF** = 9.511)

19. Liang Zhao[#], Nate Law, Noe Gomez, **Jun Seok Son**, Yao Gao, Xiangdong Liu, Jeanene M. de Avila, Mei-Jun Zhu and Min Du[*], "Obesity impairs embryonic myogenesis by enhancing BMP signaling within the dermomyotome" *Advanced Science* **2021** (Oct 14) in press. (**IF** = 16.806)

20. Song Ah Chae[#], **Jun Seok Son**[#] and Min Du[*], "Prenatal exercise in fetal development: a placental perspective" *FEBS Journal* **2021** (Aug 27) in press. (**IF** = 5.542)

[#]First author; [*]Corresponding author

Submitted or In-Revision Peer-reviewed journal articles

1. Song Ah Chae, **Jun Seok Son**, Yao Gao, Xiangdong Liu, Jeanene M. de Avila, Mei-Jun Zhu and Min Du, "Exercise via exercise apelin protects against obesity-induced placental dysfunction by accelerating mitochondrial biogenesis" Under Review to the *American Journal of Obstetrics & Gynecology*

2. **Jun Seok Son**, Song Ah Chae, Liang Zhao, Hongyang Wang, Mei-Jun Zhu, Zhihua Jiang, Jeanene M. de Avila and Min Du, "Maternal exercise intergenerationally drives muscle-based thermogenesis via apelin/AMPK" Under Review to the *EBioMedicine*

3. Ke Chen, Zhi Xin Xu, Zhengcheng He, **Jun Seok Son**, Ryan Ghorayeb, Susanna Tan, Jeanene M. de Avila, Mei-Jun Zhu, Connie J. Eaves, Christopher A. Maxwell and Min Du, "Xist recruits BRCA1 to ubiquitinate macroH2A for X chromosome inactivation in mammary epithelial cells" Under Review to the *PloS Biology*

4. Xiangdong Liu, Liang Zhao, Yanting Chen, **Jun Seok Son**, Song Ah Chae, Qiyu Tian, Yao Gao, Jeanene M. de Avila, Mei-Jun Zhu and Min Du, "Obesity induces adpose fibrosis and collagen cross-linking through suppressing AMPK and enhancing lysyl oxidase expression" Under Review to the *Molecular Metabolism*

5. Yao Gao, Liang Zhao, **Jun Seok Son**, Xiangdong Liu, Yanting Chen, Jeanene M. de Avila, Mei-Jun Zhu, Gordon Murdoch and Min Du, "Maternal exercise before and during pregnancy facilitates embryonic myogenesis by enhancing thyroid hormone signaling" Under Review to the *Thyroid*

Presentations & Abstracts

1. **Son, J.S.**, Kim, J.H., & Song, W., "The role of SPARC in hindlimb immobilized rat model," Poster Presentation in International Conference, Seoul National University, Korea (2014).

2. **Son, J.S.**, Kim, J.H., & Song, W., "The effect of resistance ladder training on SPARC expression in hindlimb immobilized rat model," Poster Presentation in 2014 International Conference of Exercise Physiology, Korea Society of Exercise Physiology, Inha University, Korea (2014).

3. **Son, J.S.**, Kim, J.H., Kim, H.J., Yoon, D.H., Kim, J.S., & Song, W., "Effect of resistance ladder training on SPARC expression in skeletal muscle of hindlimb immobilized rat model," Poster Presentation in the 14th Society of Chinese Scholars on Exercise Physiology and Fitness, University of Macau, Macau, Chine (07/22/2015).

4. **Son, J.S.**, Kim, J.H., Kim, H.J., Yoon, D.H., Kim, J.S., Song, H.S., & Song, W., "Effect of resistance ladder training on SPARC expression in skeletal muscle of hindlimb immobilized rat model," Poster Presentation in International Conference, Seoul National University, Korea (2015).

5. **Son, J.S.**, Kim, J.H., Kim, H.J., Yoon, D.H., Kim, J.S., Song, H.S., & Song, W., "Effect of resistance ladder training on SPARC expression in skeletal muscle of hindlimb immobilized rats," Oral Presentation in Exercise and Nutrition, The Ocean Resort, Yeosu, Korea (11/27/2015).

6. **Son, J.S.**, Kim, H.J., Son, Y., Lee, H., Seong, J.K., & Song, W., "Association of exercise-induced apelin levels in type 2 diabetic rats and their capillarization," Poster Presentation in Practical Applications of Exercise Nutrition, The 37th Korea Society for Exercise Nutrition, Korea University, Seoul, Korea (05/27/2016).

7. **Son, J.S.**, Kim, J.H., Kim, H.J., Yoon, D.H., Kim, J.S., Song, H.S., & Song, W., "SPARC protein expression in response to resistance exercise training in immobilized rat skeletal muscle," Oral Presentation in the 21st Annual Congress of the European College of Sport Science (ECSS), The Austria Center Vienna (ACV), Vienna, Austria (07/07/2016).

8. **Son, J.S.**, Chae, S.A., Du, M., Song, W., "Apelin secretion in overweight/obese adults following a single bout of exhaustive exercise: 2452 Board #288 June 1 9," Poster Presentation in the American College of Sports Medicine (ACSM)'s 65th Annual meeting (2018) and 9th world Congress on Exercise is Medicine and World Congress on The Basic Science of Muscle Hypertrophy and Atrophy, Minneapolis, Minnesota, USA (5/29/2018-6/2/2018).

9. **Son, J.S.**, Du, M., "Endurance exercise during pregnancy improves placental development of obese mice," Oral Presentation in 2018 Center for Reproductive Biology (CRB) Annual Retreat, Best Western Lodge at River's Edge, Orofino, Idaho, USA (06/14/2018-06/15/2018).

10. **Son, J.S.**, Liu, X., Chen, Y., Tian, Q., Zhao, L., Hu, Y., Chae, S.A., de Avila, J., Zhu, M-J., Du, M., "Maternal exercise enhances brown adipose tissue development and thermogenesis in offspring mice challenged with high fat diet," Oral & Poster Presentation in 2019 Experimental Biology (EB) Annual meeting, Orange County Convention Center, Orlando, Florida, USA (04/06/2019-04/09/2019).

11. **Son, J.S.**, Liu, X., Chen, Y., Tian, Q., Zhao, L., Hu, Y., Chae, S.A., de Avila, J., Zhu, M-J., Du, M., "Exercise enhances placental angiogenesis of obese maternal mice," Poster Presentation in 2019 Experimental Biology (EB) Annual meeting, Orange County Convention Center, Orlando, Florida, USA (04/06/2019-04/09/2019).

12. Zhao, L., Wang, B., Gomez, N.A., **Son, J.S.**, Liu, X., Tian, Q., Zhu, M-J., Du, M., "Retinoic acid regulates the activity of satellite cells and promotes skeletal muscle regeneration impaired due to obesity in mice," Poster Presentation in 2019 Experimental Biology (EB) Annual meeting, Orange County Convention Center, Orlando, Florida, USA (04/06/2019-04/09/2019).

13. **Son, J.S.**, Chen, Y., Chae, S.A., Chen, K., Zhu, M-J., Du, M., "Lack of maternal exercise programs skeletal muscle metabolic dysfunction in offspring," Poster Presentation in the 1st Annual Symposium on Development, Disease, & Reproduction and CRB Symposium 2019 Poster Competition, Veterinary and Biomedical Research (VBR) Building, Washington State University, Pullman, Washington, USA (10/21/2019).

Invited Speaker

1. **Son, J.S.**, "Perinatal Exercise and Epigenetics," Invited Speaker in the Neuroscience, Anatomy, Physiology & Pharmacology Seminar Series (NAPPSS), moderated by the Department of Physiology, Leadership Hall, MSTF Building, University of Maryland School of Medicine, Baltimore, USA (09/02/21)

2. **Son, J.S.**, "Perinatal Exercise and Muscle Regeneration," Invited Speaker in the hybrid in person and virtual Physical Therapy and Rehabilitation Science Weekly Research Seminar, moderated by the Department of Physical Therapy and Rehabilitation Science, University of Maryland School of Medicine, Baltimore, USA (09/17/21)

3. **Son, J.S.**, "Exercise and Epigenetics: A bioinformatics approach," Invited Speaker in the virtual EWHA-System Health & Engineering Weekly Seminar, moderated by Dr. Kyungock Yi, Ewha Womans University, Seoul, South Korea (11/02/21)

4. **Son, J.S.**, "Exercise is Medicine: Perinatal Exercise and Epigenetics," Invited Speaker in the virtual Sport, Health, and Rehabilitation Major weekly seminar, moderated by Dr. Ki-Kwang Lee, Kookmin University, Seoul, South Korea (11/03/21)

Published Multimedia

5. Exercise during pregnancy protects offspring from obesity. *EurekAlert!*, Apr 7, 2019. https://www.eurekalert.org/pub_releases/2019-04/eb-edp032819.php

6. Exercise during pregnancy protects offspring from obesity. *Science Daily*, Apr 7, 2019. https://www.sciencedaily.com/releases/2019/04/190407144210.htm

7. Exercise during pregnancy may reduce obesity risk in children. *Slashgear.com*, Apr 7, 2019. https://www.slashgear.com/exercise-during-pregnancy-may-reduce-obesity-risk-in-children-07572331/

8. Women can help prevent their children from becoming obese by exercising during pregnancy, study claims. *Dailymail.co.uk*, Apr 7, 2019. https://www.dailymail.co.uk/news/article-6897311/Women-help-prevent-children-obese-exercising-pregnancy-study-says.html

9. Exercise during pregnancy protects children from obesity, study finds. *Independent.co.uk*, Apr 7, 2019. https://www.independent.co.uk/news/science/exercise-pregnancy-child-obesity-study-weight-a8858921.html

10. New Study Suggests Exercise during pregnancy protects childhood obesity. *Scarymommy.com*, Apr 8, 2019. https://www.scarymommy.com/new-study-suggests-exercise-during-pregnancy-prevent-childhood-obesity/

11. Exercise during pregnancy will help your kid fight obesity later in life. *TheBump.com*, Apr, 2019. https://www.thebump.com/news/exercise-pregnancy-kid-less-risk-obesity-later-life

12. Why it's so important to exercise during pregnancy. *Yahoo.com*, Apr 8, 2019. https://news.yahoo.com/important-exercise-pregnancy-121942216.html?guccounter=1

13. Exercise during pregnancy guards offspring against obesity, says study. *Doctor.ndtv.com (India)*, Apr 8, 2019. https://doctor.ndtv.com/pregnancy/exercise-during-pregnancy-guards-offspring-against-obesity-says-study-2019732

14. Exercise during pregnancy could protect children from obesity. *Interestingengineering.com*, Apr 8, 2019. https://interestingengineering.com/exercising-during-pregnancy-could-protect-children-from-obesity

15. Exercise during pregnancy protects offspring from obesity. *Mdlinx.com*, Apr 8, 2019. https://www.mdlinx.com/family-medicine/top-medical-news/article/2019/04/08/7563229/

16. Exercise during pregnancy guards offspring against from obesity, study says. *Aninews.in (India)*, Apr 8, 2019. https://www.aninews.in/news/lifestyle/parenting/exercise-during-pregnancy-guards-offspring-against-obesity-says-study20190408135326/

17. Exercise during pregnancy can protect the child from obesity. *Indianexpress.com (India)*, Apr 8, 2019. https://indianexpress.com/article/parenting/health-fitness/exercise-during-pregnancy-protect-child-obesity-5665341/

18. Exercise during pregnancy could produce slimmer children. *Inews.co.uk*, Apr 8, 2019. https://inews.co.uk/news/health/exercise-during-pregnancy-could-produce-slimmer-children-277424

19. Regular exercise during pregnancy benefits child's metabolic health. *Deccanchronicle.com*, Apr 8, 2019. https://www.deccanchronicle.com/lifestyle/health-and-wellbeing/080419/regular-exercise-during-pregnancy-benefits-childs-metabolic-health.html

20. Exercise during pregnancy benefits children's metabolic health: study. *Devdiscourse.com*, Apr 8, 2019. https://www.devdiscourse.com/article/others/471790-exercise-during-pregnancy-benefits-childrens-metabolic-heath-study

21. Exercising while pregnant could potentially prevent childhood obesity, new study suggests. Romper.com, Apr 8, 2019. https://www.romper.com/p/exercising-while-pregnant-could-potentially-prevent-childhood-obesity-new-study-suggests-17021126

22. Exercise during pregnancy good for metabolic health of offspring, study reveals. Thefurmanpaladin.com, Apr 8, 2019. https://www.thefurmanpaladin.com/exercise-pregnancy-good-metabolic-health-offspring-study-reveals/

23. Research has found that exercise during pregnancy can reduce risk of obesity in offspring. *Heraldoffashion.com*, Apr 8, 2019. https://heraldoffashion.com/research-has-found-that-exercise-during-pregnancy-can-reduce-risk-of-obesity-in-offspring/

24. Regular exercise during pregnancy keeps child from obesity, says study. *Larestly.com (India)*, Apr 9, 2019. https://www.latestly.com/lifestyle/health-wellness/regular-exercise-during-pregnancy-keeps-child-from-obesity-says-study-749050.html

25. Exercise during pregnancy can improve child's metabolism. *Telanganatoday.com*, Apr 9, 2019. https://telanganatoday.com/exercise-during-pregnancy-can-improve-childs-metabolism

26. Exercise during pregnancy protects offspring from obesity. *Medium.com*, Apr 9, 2019. https://medium.com/@samwilliams.v/exercise-during-pregnancy-protects-offspring-from-obesity-cd00806135c1

27. Exercise during pregnancy guards offspring against obesity. Dynamitenews.com, Apr 10, 2019. https://www.dynamitenews.com/story/exercise-during-pregnancy-guards-offspring-against-obesity

28. A healthy pregnancy with exercise. Nashvilleparent.com, Apr 10, 2019. https://nashvilleparent.com/a-healthy-pregnancy-with-exercise

29. Exercising during pregnancy can prevent obesity in children. *Babygaga.com*, Apr 11, 2019. https://www.babygaga.com/exercising-during-pregnancy-can-prevent-obesity-in-children/

30. Exercise during pregnancy may protect offsprings from obesity. *Speciality.medicaldialogues.in (India)*, Apr 12, 2019. https://speciality.medicaldialogues.in/exercise-during-pregnancy-protects-offsprings-from-obesity/

31. New study suggests exercise during pregnancy prevent childhood obesity. Moms.com, Apr 12, 2019. https://www.moms.com/exercise-during-pregnancy-prevent-childhood-obesity/

32. Mums-to-be who exercise may be more likely to have slimmer kids. *BBC Science Focus Magazine*, Apr 16, 2019. https://www.sciencefocus.com/news/mums-to-be-who-exercise-may-be-more-likely-to-have-slimmer-kids/

33. Lack of exercise during pregnancy could predispose child to obesity (6th paragraph). Organicconsumers.org, Apr 19, 2019. https://www.organicconsumers.org/news/lack-exercise-during-pregnancy-could-predispose-child-obesity

34. Exercise during pregnancy reduces obesity among offspring. WSU Insider, Apr 17, 2020. https://news.wsu.edu/2020/04/17/exercise-pregnancy-reduces-obesity-among-offspring/

35. Exercise during pregnancy reduces obesity among offspring. Neurosiencenews.com, Apr 18, 2020. https://neurosciencenews.com/pregnancy-exercise-obesity-16201/

36. Science Update: Mouse study links exercise during pregnancy to lower risk of obesity in offspring. NIH News, Apr 23, 2020. Science Update: Mouse study links exercise during pregnancy to lower risk of obesity in offspring | NICHD - Eunice Kennedy Shriver National Institute of Child Health and Human Development (nih.gov)

37. Can exercise during pregnancy reduce obesity in offspring? Big Think, Apr 27, 2020. https://bigthink.com/surprising-science/exercise-while-pregnant?rebelltitem=1#rebelltitem1

38. Exercise during pregnancy reduces obesity among offspring, SHR #2519. *Super Human Radio*, May 19, 2020. http://superhumanradio.net/shr-2519-exercise-during-pregnancy-reduces-obesity-among-offspring