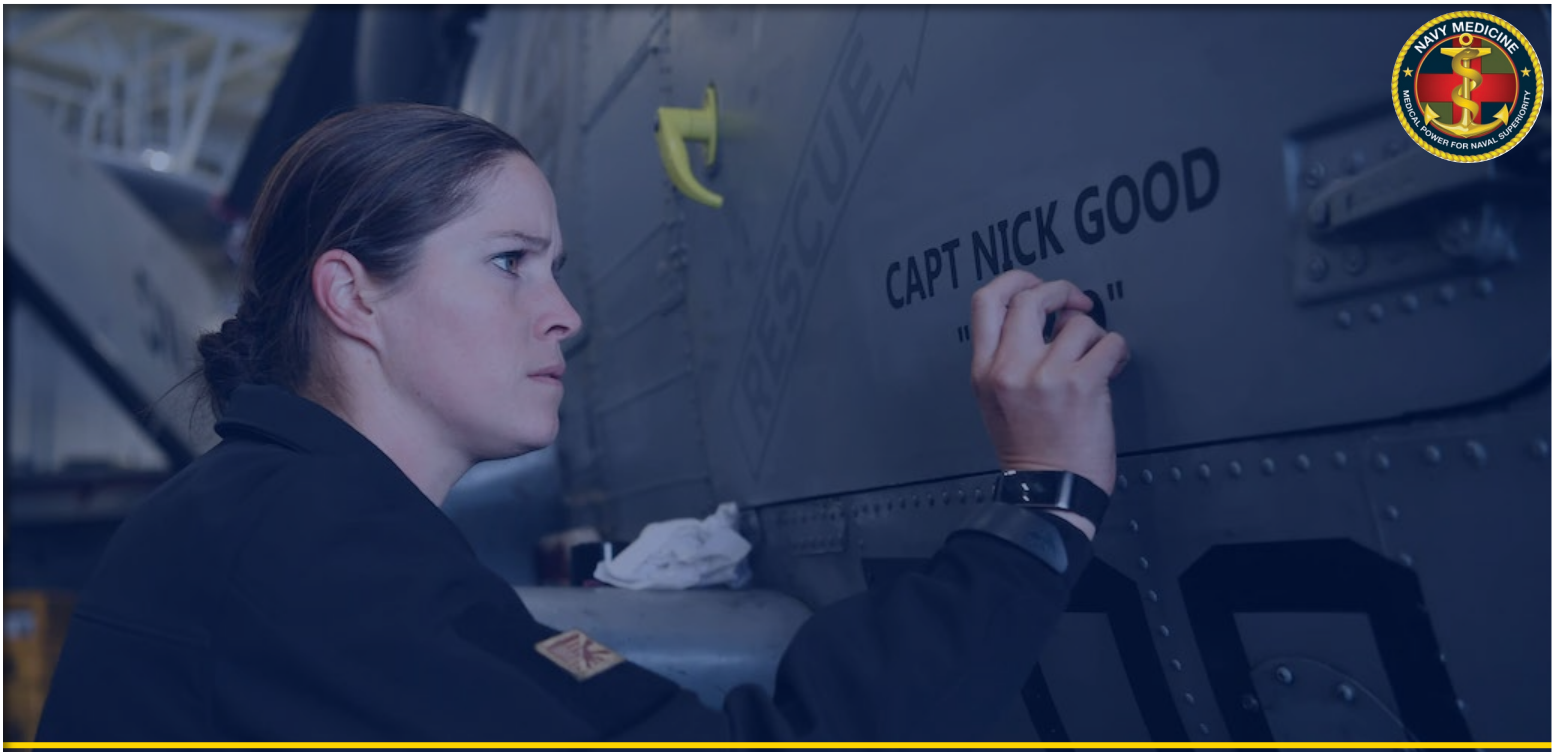


Neuromusculoskeletal Considerations During Pregnancy and Postpartum Provider Resource

What are the most common musculoskeletal conditions during pregnancy and postpartum?

MSK CONDITION	DESCRIPTION	TREATMENT
Pelvic Girdle Pain	Pain in sacral/gluteal region	Targeted intervention not typically needed; 93% have resolution naturally within 3 months postpartum
Coccydynia	Tailbone Pain	Self-limited; treatment includes donut pillow, Tylenol, managing constipation and targeted physical therapy. Pain typically resolves postpartum
Sacroiliitis	Inflammation in sacral iliac (SI) joints	During pregnancy, treat with non-elastic SI belt. If pain persists postpartum, benefit from physical therapy and/or pelvic floor therapy
Pubic Symphysis Diastasis	Fibrous cartilage disc between the two pubic bones	Bracing; physiologic norms return to pre-pregnancy by 5 months postpartum
Hip Pain	related to deficits in osteoblast function	Protected weight-bearing; osteoporosis can continue up to one year postpartum
Leg Cramps	Cramping most found in the calf	Prenatal vitamin to support possible Ca+++/Mg+++ deficiency. Calcium and B6 supplementation prove helpful for some. Walking and stretching are encourage to prevent build up of lactic acid or pyruvic acid
Meralgia Paresthetica	Numbness and tingling in the outer part of the thigh	Ensure clothing is sufficiently loose, especially at belt line, patient reassurance appropriate
Patellofemoral Pain Syndrome	Anterior knee pain about the patella	Physical therapy focus on hip, core, and leg stabilization, Orthotics helpful especially if patient also experiencing foot pain, Relative rest if overexertion is contributing to pain (MOVE acronym)
Foot Pain	Foot pain can be caused by peripheral edema, over-pronation, plantar fasciitis, or tarsal tunnel syndrome	Depending on the diagnosis, supportive footwear, rest, ice, compress, elevate (RICE) and stretching can help with pain management
Hand/ Wrist Pain	Hand/ wrist pain can be caused by Carpel Tunnel Syndrome or DeQuervain's Tenosynovitis, inflammation of the first extensor compartment which contains the abductor pollicis longus and extensor pollicis brevis	Depending on diagnosis, thumb spica splints, and Cortisone injections can help pain management. NSAID use is an option during postpartum, however they are not recommended during pregnancy
Chest Wall Pain	Intercoastal neuralgia presents as a thoracic radicular pain.	Trial of lidocaine patches or intercoastal nerve blocks
Abdominal Wall Pain	Diastasis Recti presents as separation of the rectus abdominal muscles along the linea alba	Consider referral to physical therapy (PT) early to help patients learn core engagement techniques that support abdomen wall recovery without postpartum issues and home exercises for abdominal wall pain

What type of pain is most prevalent during pregnancy and postpartum?

- Low back pain is the most common musculoskeletal (MSK) condition in pregnancy; and it becomes more common as pregnancy progresses (especially after week 22). Up to 90% of persons will experience low back pain during their pregnancy.
- Causes of low back pain include muscle imbalance, increased ligamentous laxity, postural changes, altered center of mass, and potential change in activity level.

What can I advise my patients to do to manage their musculoskeletal pain during pregnancy?

- Physical activity throughout pregnancy can **reduce the risk** of developing **gestational diabetes, high blood pressure and pre-eclampsia.**
- All pregnant persons without contraindications should be physically active throughout pregnancy.
- Pregnant persons should accumulate at **least 150 minutes of moderate-intensity physical activity each week** to achieve clinically meaningful health benefits and reductions in pregnancy and postpartum complications. The American College of Obstetricians and Gynecologists (*ACOG) advises pregnant persons to evaluate the vigor of their physical activity by using the "Talk Test"; pregnant persons should be able to carry on a conversation while performing cardio exercise.*[1]
- Pregnant persons who habitually engage in **vigorous – intensity aerobic activity** or who are physically active before pregnancy **can continue these activities during pregnancy and postpartum period.**
- Physical activity should be **accumulated over a minimum of three days per week**; however, being active every day is encouraged.
- Pregnant persons should incorporate a **variety of aerobic and resistance training activities** to achieve greater benefits:

Recommended Activities		Restricted Activities	
• Stationary cycling	• Aerobic Exercise	• Scuba Diving	• Downhill Snow Sports
• Walking	• Dancing	• Contact Sports	
• Swimming	• Running	• Strenuous Heat Activities (e.g., hot yoga)	
• Hydrotherapy	• Resistance Training	• Activities with high risk of abdominal trauma or falling	
• Water Aerobics	• Yoga/ Gentle Stretching		

- **Pelvic floor muscle training** (e.g., kegel exercises) may be performed daily to reduce risk of urinary incontinence. Instruction in proper technique is recommended to obtain optimal benefits.
- Pregnant persons who experience light-headaches, nausea or feel unwell when they exercise flat on their back should **modify their exercise position** to avoid the supine position.
- If musculoskeletal pain persists, **refer patient to physical therapy.**

1. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2020/04/physical-activity-and-exercise-during-pregnancy-and-the-postpartum-period

What can I advise my patients to do to manage their musculoskeletal pain during postpartum?

- Postpartum patients are encouraged to start diaphragmatic breathing immediately after delivery.
- Postpartum patients may resume prior exercise programs as soon as medically safe (as early as within days) depending on mode of delivery and complications.
- Pelvic floor muscle training (e.g., kegel exercises) may be performed daily to reduce risk of urinary incontinence. Instruction in proper technique is recommended to obtain optimal benefits.
- Abdominal strengthening can reduce incidence of diastasis recti.
- Feed or pump prior to exercise to prevent discomfort with breast engorgement. Aerobic activity is not shown to reduce milk supply.
- Consider referral to pelvic floor therapy or physical therapy as appropriate if musculoskeletal discomfort persists three months postpartum.

How can I discuss exercise with pregnant and postpartum patients?

- Employ motivational interviewing techniques to determine ideal time for behavior modification and adopting a healthy lifestyle. More frequent interviews yield the highest increase in motivation.
- If the pregnant person is not currently active, complete a thorough clinical evaluation before developing an exercise plan.
- Use perceived exertion as tool to adjust and monitor intensity. Exercise should be considered moderate intensity and perceived exertion should be about 13 – 14 on the Borg rating.
- The Talk Test can be used to measure exertion. As long as a person can carry a conversation during activity, they are likely not overexerting themselves.
- Patients can utilize exercise prescription templates to draft for review and input by their obstetrical clinician. For more information, visit the PAR-Q+ website or CSEP Get Active Questionnaire for Pregnancy website.

Characteristics of a Safe and Effective Exercise Regimen in Pregnancy

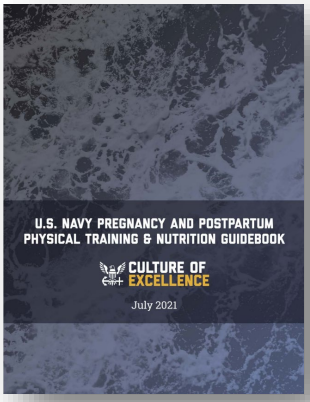
When to Start	First Trimester, More Than 12 Weeks of gestation
Duration of a session	30 – 60 minutes
Times per week	At least 3 – 4 (up to daily)
Intensity of exercise	Less than 60 – 80% of age-predicted maximum heart rate*
Environment	Thermoneutral or controlled conditions (air conditioning: avoiding prolonged exposure to heat)
Self-reported intensity of exercise (Borg scale)	Moderate intensity (12 – 14 on Borg scale)
Supervision of exercise	Preferred, if available
When to end	Until delivery (as tolerated)

**Usually not exceeding 140 beats per minute*

Where can active duty service women go to get more information on managing musculoskeletal pain during pregnancy and postpartum?

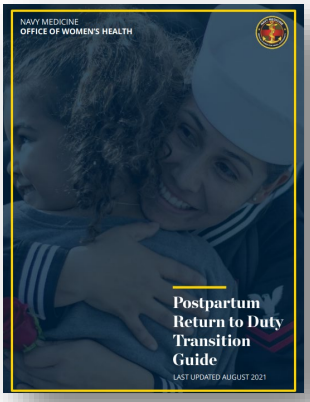
The Artemis Program

The Artemis Program is a command-endorsed, Navy Medicine-informed and supported, evidence-based approach to increase the rehabilitation, readiness and retention of pregnant and postpartum Marines and Sailors. The Artemis Program provides pregnant Marines with additional touchpoints during pregnancy and the postpartum period to support their readiness and retention. The Program is currently hosted at Marine Corps Base Camp Pendleton with plans for expansion to meet the needs of other female Sailors and Marines. Participating Marines enroll in the Artemis Program upon completion of their first obstetrics visit.



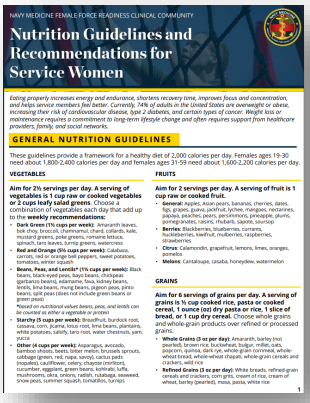
U.S. Navy Pregnancy and Postpartum Physical Training and Nutrition Guidebook

This U.S. Navy Pregnancy and Postpartum Physical Training and Nutrition Guidebook is a resource that provides service members with guidance on physical fitness and nutrition during their pregnancy and postpartum periods. The content of this guidebook should not be taken as medical advice. Each service member should consult a registered dietitian prior to beginning any new dietary regimen and for individualized nutrition.



Postpartum Return to Duty Guide

The Postpartum Return to Duty Transition Guide Update incorporates recent Navy and Marine Corps policy that adjusts postpartum exemption from Physical Fitness Assessments from nine months to twelve months. The resource compiles information for service women on physical and emotional recovery after childbirth, support resources for military families, returning to duty after having a baby, and Navy and Marine Corps resources related to pregnancy and parenthood.



Nutrition Guidelines and Recommendations for Service Women

The Nutrition Guidelines and Recommendations for Service Women is a comprehensive nutrition resource for service women that includes information on Meals Ready to Eat (MREs), the stoplight nutrition system at dining facilities, nutrition labels, and other important nutrition-related topics to help guide service women to make informed choices.