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Shoulder Dystocia

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Course Description:

Shoulder dystocia is something that cannot be predicted, but one can prepare for this obstetrical emergency. This course will explain how to prepare and what to expect. Participants will gain confidence so that when they are faced with these situations in the future, they will be more prepared.

Approximate Time to Complete: 25 minutes

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Introduction

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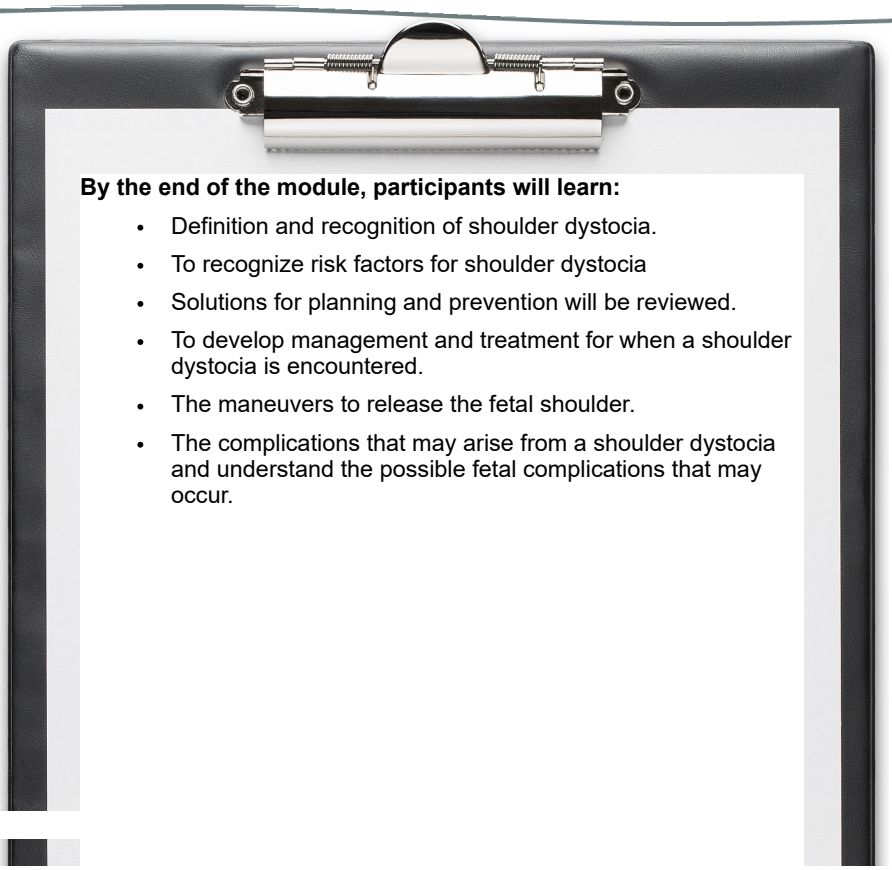

By the end of the module, participants will learn:

- Definition and recognition of shoulder dystocia.
- To recognize risk factors for shoulder dystocia
- Solutions for planning and prevention will be reviewed.
- To develop management and treatment for when a shoulder dystocia is encountered.
- The maneuvers to release the fetal shoulder.
- The complications that may arise from a shoulder dystocia and understand the possible fetal complications that may occur.

Objectives

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Table of Contents

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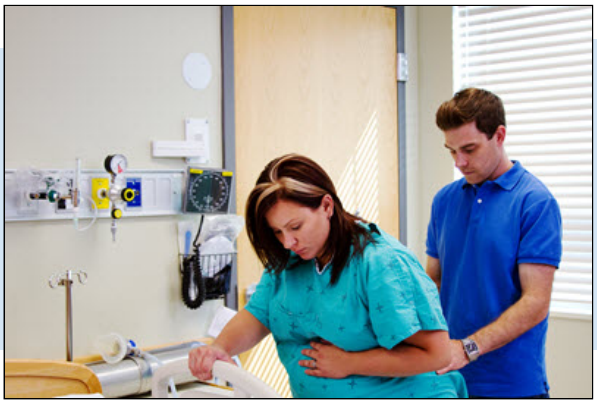
Shoulder Dystocia

Shoulder dystocia is defined as implementing additional obstetric maneuvers, beyond mild traction, to deliver the fetal shoulders and achieve a vaginal birth. Preventing fetal asphyxia, permanent Erb's palsy, bone fracture, maternal trauma, and death is the goal of management [1].

- The fetal shoulders do not deliver spontaneously.
- Shoulder dystocia is caused by the impaction of the anterior fetal shoulder behind the maternal pubic symphysis.
- It can also occur from impaction of the posterior shoulder on the sacral promontory.
- This is an unpredictable and unpreventable obstetrical emergency.



Definition

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- Shoulder dystocia is an obstetrical emergency occurring in 0.2 to 3% of all births [1].
- In a 1992 population study, the rate of shoulder dystocia increased by 35% in a non-diabetic population in the presence of assisted vaginal birth [2].
- Nearly 50% of all shoulder dystocia occurs in women having no risk factors [2-4].
- Being prepared for this high risk, low occurring event is essential to prevent poor outcomes.

- A moderate number of brachial plexus injuries are not related to shoulder dystocia [1].
- Nearly 4% of brachial plexus injuries occur following a cesarean delivery [1].

The most common factors associated with cases of shoulder dystocia are [6-7]:

- Macrosomia
- Maternal obesity
- Post-term pregnancy
- Diabetes

Occurrence Rates

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Preconception Risk Factors

- Maternal pelvic diameter is platypelloid
- Maternal pelvic shape/size
- Mother herself was born weighing > 4000gms
- History of delivering another child with shoulder dystocia
- It is predicted that at least 10 percent of women have a recurrence episode of shoulder dystocia [18].
- Diabetes prior to pregnancy
  - A history of a prior macrosomic infant
- Including history of gestational diabetes in a previous pregnancy.
- Short stature
- Maternal obesity
- Multiparity
- Advanced maternal age or first child at an older age [5]

Click the arrows to view all the risk factors.

Preconception Risk Factors

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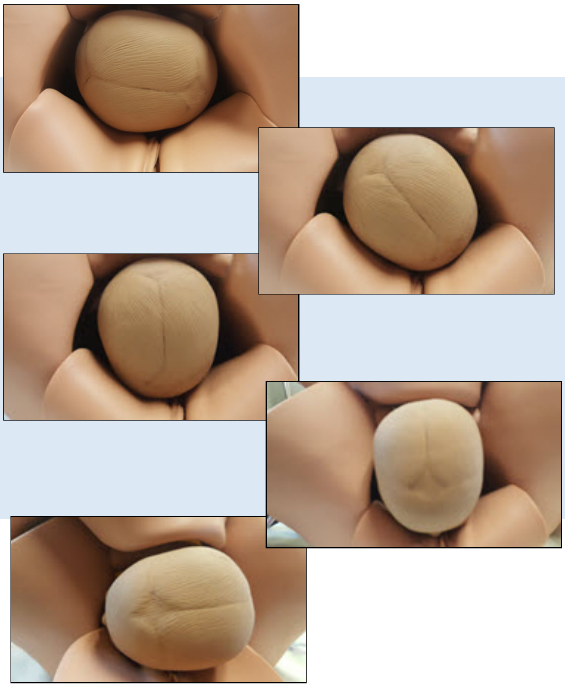
- When the fetal shoulders enter the pelvis at an oblique angle, the posterior shoulder is ahead of the anterior one.
- The shoulders then rotate to an anterior-posterior position at the pelvic outlet with external rotation of the fetal head.
- When this occurs, the anterior shoulder will deliver under the symphysis pubis.
- When the anterior-posterior position of the shoulders simultaneously descends into the pelvic inlet, the anterior shoulder can become impacted behind the symphysis pubis or the posterior shoulder may be impacted by the sacral promontory.
- Impaction anteriorly is more common.



cardinal movements.

Etiology

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- Most occurrences of shoulder dystocia will not be predicted or prevented, as most present without risk factors.
- There is no method to identify which fetus will experience shoulder dystocia as ultrasound measurements for macrosomia are estimates and have limited accuracy.
- Delivery room staff must anticipate and recognize shoulder dystocia and proceed through a step by step algorithm to accomplish delivery.
- Delivery must occur within an effective time frame to prevent injury to mother, fetus, or both.
- The nurse assigned to a laboring woman who is considered at risk for a shoulder dystocia, based upon preconception, antepartum, or intrapartum risk assessment should be prepared for this event.
- A discussion with the woman and her support person(s) should include education on the possibility of shoulder dystocia and the maneuvers to dislodge an impacted shoulder.
- A woman who understands may be more cooperative in the team leaders' instructions for the different maneuvers.

History and Initial Exam

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- The health care team may observe the recognizable turtle sign when the presenting head extends and retracts on the mother's perineum with contractions and pushing efforts.
- Also, spontaneous restitution does not occur and delivery is delayed with good pushing efforts and use of usual maneuvers.
- As soon as the fetal position is identified, a stool should be placed on the side of the bed corresponding to the fetal back.
- This will alert other team members to apply suprapubic pressure in the direction to the fetal nose causing a decrease in shoulder diameter.

Turtle sign may be present when the presenting head extends and retracts on the mother's perineum with contractions and pushing efforts. This retraction is caused by the baby's anterior shoulder being caught on the maternal pubic bone or the posterior shoulder being caught on the sacral promontory. This presentation is similar to a turtle pulling its head back into its shell.

Click here to watch a video.

Turtle Sign

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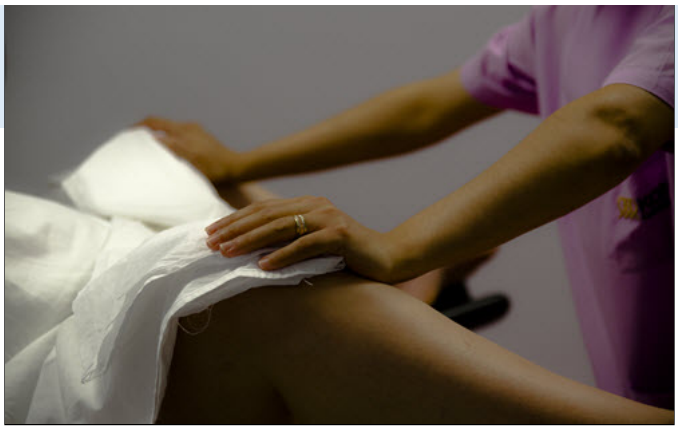
- Shoulder dystocia cannot be predicted solely based upon antenatal risk factors or labor abnormalities.
- Delivery room personnel should be alert, while in attendance at all vaginal deliveries, for the possibility of shoulder dystocia and be prepared to initiate the various maneuvers identified as effective for delivery of impacted fetal shoulders.
- From the time of fetal head delivery, the clinician has 4 minutes to deliver a previously well oxygenated term infant until risk of asphyxia occurs [20].
- These maneuvers are intended to displace an impacted anterior shoulder which is behind the maternal symphysis pubis.
- This is accomplished by rotating the fetal torso, which rotates the anterior shoulder, or delivering the posterior arm and shoulder if fetal torso is not successful in delivery.



Management and Treatment

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- The goal of management, in regards to fetal outcomes, is to prevent asphyxia and umbilical cord compression, avoid physical injury including but not limited to bone fractures or Erb's palsy, and to prevent death.
- Goal management for the mother includes prevention of injury including bone fracture or extensive tissue trauma.
- Maternal trauma, however, may occur to prevent permanent injury to her child.

Goal of Management

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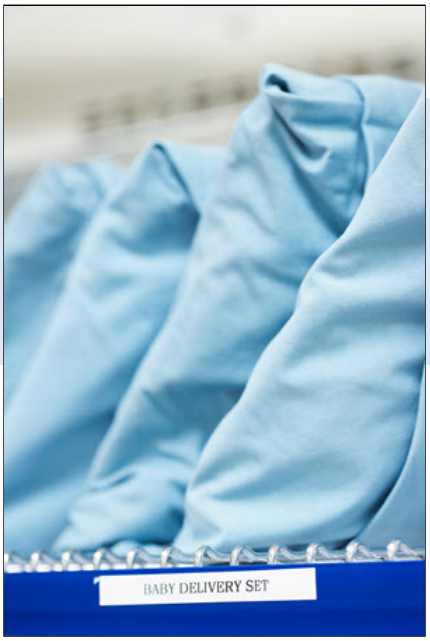
- As with any delivery, the nurse should have standard delivery room equipment set-up and ready for use.
- The set up and equipment must include:
  - Radiant warmer on and warm
  - Additional linen for use following initial drying
  - Resuscitation equipment checked and ready for use
  - Neonatal medication available for immediate use as needed
  - Supplies to obtain cord blood gases, to document acid-base status of the infant, at the time of birth



Delivery Room Setup

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- Initial steps of management should be implemented when delivery room personnel suspect shoulder dystocia.
- If not already present in the delivery room, additional staff including nurses, anesthesia, obstetric, and pediatric personnel should be summoned.
- Neonatal intensive care unit (NICU) or nursery staff should be alerted to the situation.
- Surgical staff should be notified of the possibility of an emergency cesarean section delivery.

Management

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- One nurse will have the sole responsibility of documenting events:
  - Healthcare staff present in the delivery room
  - Time of head delivery
  - Time each maneuver is implemented
  - Time the shoulders are delivered
  - Clear and concise instructions should be verbalized while all staff present in the delivery room remains calm

Delivery

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- Pushing efforts by the mother should be stopped immediately upon recognition of shoulder dystocia while maneuvers are implemented to reposition the fetus.
- The provider should not provide excessive neck rotation or head or neck traction as these practices may result in stretching and injury to the fetal brachial plexus nerve and further impact the shoulders.

"Hands Off"

- A protocol should involve teaching a "hands off" approach involving:
  - avoidance of maternal pushing
  - no traction on the fetal head
  - immediately proceeding to the oblique suprapubic rotation before utilizing any other maneuver

Initial Stages of Management

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- Fundal pressure is NOT an obstetric maneuver used but with shoulder dystocia its use could lead to further impaction of the shoulders, fractured fetal clavicle, or uterine rupture.
- The maternal bladder should be emptied if distended.
- No one single maneuver is more effective than another but it is suggested to use the least invasive maneuver first.
- The provider will make this decision based upon the fetal presentation and assessment of shoulder dystocia.

Fundal Pressure

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The Maneuver's to assist in resolution of a shoulder dystocia are taught with **FREDA'S HELP**.

- **F** = flex the hips or McRobert's maneuver
- **R** = rotate the posterior fetal shoulder
- **E** = evaluate for an episiotomy
- **D** = deliver the posterior shoulder (swimmers move)
- **A** = move her onto all fours
- **S** = have suprapubic pressure applied with each maneuver
- **HELP** - call for help once recognized and have help when risk factors present

FREDAS HELP

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Deliver Posterior Shoulder

- Where suprapubic pressure and hip flexion (McRobert's)are unsuccessful to resolve the shoulder dsytocia, delivery of the posterior arm can be considered as the next maneuver. The delivery of the posterior arm has a high degree of accomplishing the delivery.[35,36]
  - Often the posterior arm can be delivered by grasping and flexing this arm onto the fetal chest.
  - When this fails, a soft 12-14 French catheter may be threaded around the posterior arm and then pressure applied to help deliver the posterior shoulder thus resolving the shoulder dystocia. Some refer to this as the swimmer's move.
- McRoberts maneuver (hip flexion) is performed first as this is the least invasive and may be all that is needed to dislodge the impacted shoulder [1].
- This is followed by suprapubic pressure. A soft 12-14 French catheter may be threaded around the posterior arm and then pressure applied to help deliver the posterior shoulder thus resolving the shoulder dystocia.
  - McRoberts maneuver requires two persons, each holding a maternal leg and flexing the thigh back against the maternal abdomen.
  - This maneuver causes cephalad rotation of the symphysis pubis and flattening of the sacrum which removes the sacral promontory as an obstruction site and brings the pelvic inlet into the plane perpendicular to the maximum expulsive force improving pushing efforts.
  - The plane of the maternal pelvis is changed but not the dimensions
  - This maneuver does not change the measurements of the maternal pelvis.
- McRoberts position alone has successfully alleviated the shoulder in nearly half of shoulder dystocias [21].

Maneuvers

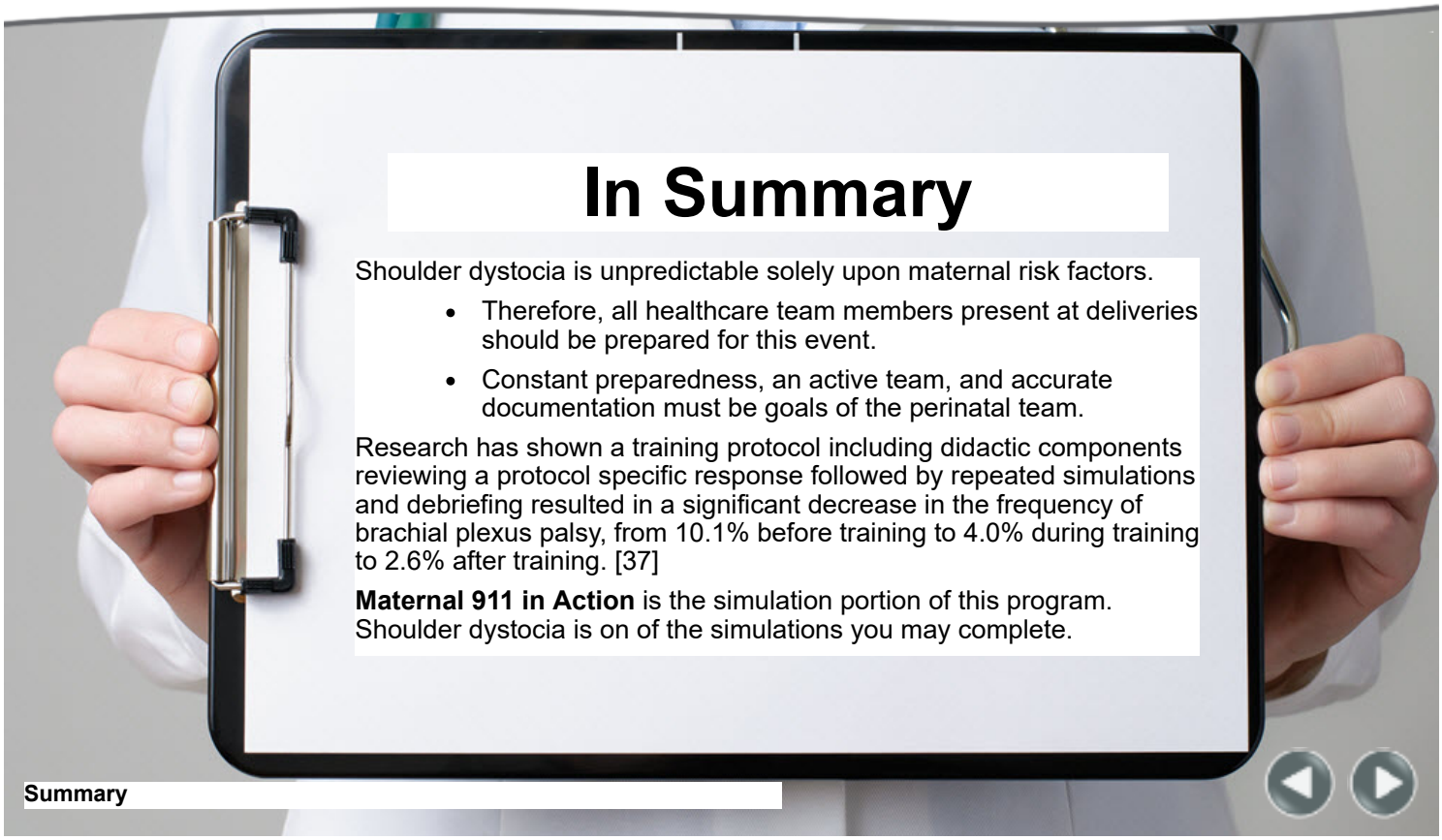
Click the gray arrows to learn more about different maneuvers.

- This high acuity, low occurring clinical situation requires all healthcare providers who attend deliveries to have a level of awareness and be prepared for shoulder dystocia.
- Discussions, skill drills, and simulation labs, which include a team approach to shoulder dystocia, can facilitate delivery of the fetus with fewer negative outcomes for the fetus as well as the mother [1].
- A team having a shoulder dystocia protocol has found decreased diagnoses of brachial plexus injury at the time of delivery and at the time of discharge [28].
- A protocol should involve teaching a "hands off" approach involving:
  - avoidance of maternal pushing
  - no traction on the fetal head
  - immediately proceeding to the oblique suprapubic rotation before utilizing any other maneuver

Guidelines from Professional Organizations

Fetal injury present at birth can be related to the impacted shoulders alone or the provider's attempt to deliver the infant with or without maneuvers.

- Fractures of the fetal clavicle or humerus may occur [29-31].
- Injury to the brachial plexus nerve can occur if the fetal shoulders remain impacted while the fetal head continues to descend [32, 33].
- Transient brachial plexus injury in 3.0 to 16.8% of newborns.
- Permanent brachial plexus palsy in 0.5 to 1.6% of this population.
- If the umbilical cord becomes compressed, either due to a tight nuchal cord or compression along any part of the cord, asphyxia may result..
- This may occur during a prolonged period of time from fetal head delivery and delivery of the impacted shoulders.
- Maternal injury may include postpartum hemorrhage in as many as 11% of the women related to uterine atony, uterine rupture, or a fourth degree laceration [34].
- Maternal injury has resulted in a fourth degree laceration in 3.8% of the cases [34].


In Summary
Shoulder dystocia is unpredictable solely upon maternal risk factors.
Therefore, all healthcare team members present at deliveries should be prepared for this event.
Constant preparedness, an active team, and accurate documentation must be goals of the perinatal team.
Research has shown a training protocol including didactic components reviewing a protocol specific response followed by repeated simulations and debriefing resulted in a significant decrease in the frequency of brachial plexus palsy, from 10.1% before training to 4.0% during training to 2.6% after training. [37]
Maternal 911 in Action is the simulation portion of this program. Shoulder dystocia is on of the simulations you may complete.
Summary

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Definitions

- **Macrosomia:** Fetal growth larger than expected for gestational age; >90th percentile or >4,500g.
- **Platypelloid:** this pelvis shape is described as flat.
  - The opening in the middle is not an open circle but more like a compressed oval shape.
  - Woman with this type of pelvis are not able to easily have a vaginal birth.
  - Less than 3% of all women have this pelvis shape.
- **Obesity:** Defined by the National Institutes of Health (the NIH) as a BMI of 30 and above.
  - A BMI of 30 is about 30 pounds overweight.
- **Post dates:** pregnancy > 42 weeks' gestation.
- **Restitution:** Also known as external rotation.
  - This is the spontaneous realignment of the head with the shoulders.
- **Asphyxia:** A condition in which an extreme decrease in the concentration of oxygen in the body accompanied by an increase in the concentration of carbon dioxide leads to death.
- **Uterine atony:** Failure of the myometrium to contract after delivery of the placenta; associated with excessive bleeding from the placental implantation site.

Definitions

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FREDA

FREDA's Shoulder Dystocia Maneuvers

- **Call for HELP!**
- **F**lex her hips and apply **S**uprapubic pressure
- **R**otate the fetal shoulder towards the fetal nose; if the shoulder is not dislodged then rotate the shoulder the other way
- Evaluate for **E**pisiotomy
- **D**eliver the posterior arm (swimmers move)
- Move her into **A**ll fours
- An assistant should apply **S**uprapubic pressure with each maneuver's attempt, pushing towards the fetal nose each time.

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Maneuvers

- Call for HELP!
- McRoberts - flexing hips
- Supropubic pressure - pressure towards the fetal nose above the pubic bone
- Rubin maneuver - rotating the posterior fetal shoulder from the vaginal approach
- Woods maneuver - pushing on the anterior aspect of the posterior shoulder in a corkscrew fashion to dislodge the impacted anterior shoulder
- Delivery of the posterior fetal arm
- Fetal clavicular fracture, pulling on the anterior clavicle, but this can be difficult
- Gaskin's Maneuver - transition the woman to all fours
- Episiotomy

FREDA 2

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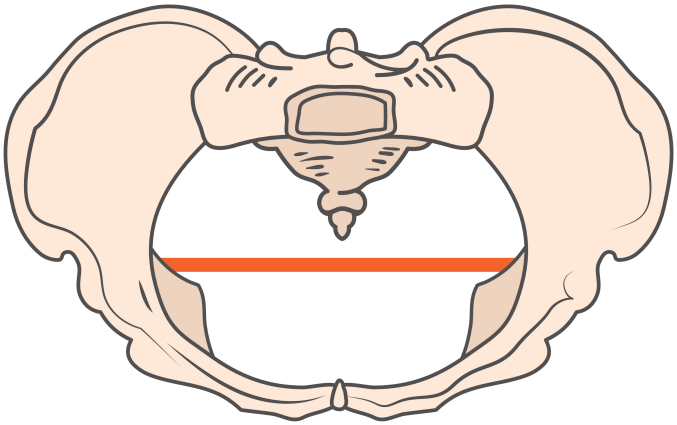
Congratulations!

You have successfully completed this module.

Click on the above 'X' to take the post-test for this course.
If you do not attain a passing score after two attempts at the post-test the entire program must be repurchased.



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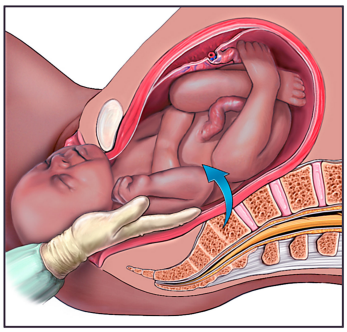

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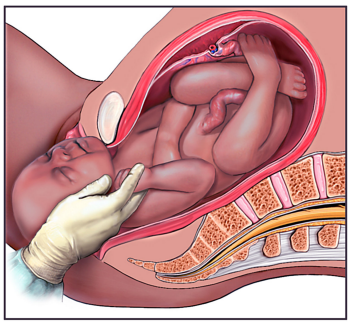

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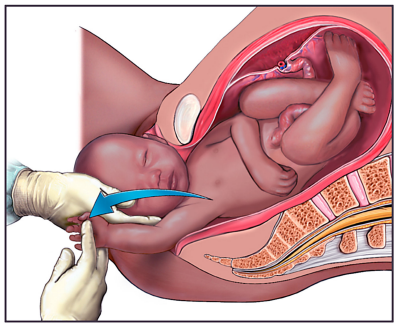

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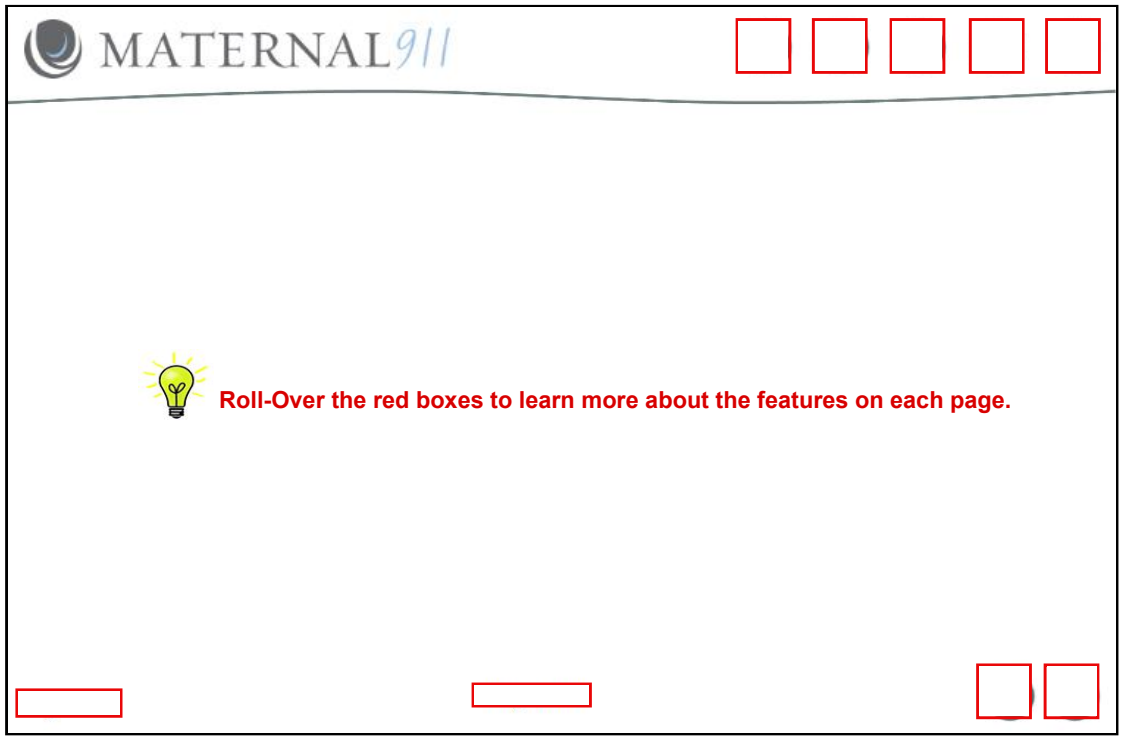

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References

1. Committee on Practice Bulletins-Obstetrics. Practice Bulletin No 178. Shoulder Dystocia. Obstet Gynecol . 2017; 129:e123.

2. Nesbitt TS, Gilbert WM, Herrchen B. Shoulder dystocia and associated risk factors with macrosomic infants born in California. Am J Obstet Gynecol 1998; 179(2):476-80.

3. Geray M, McParland P, Johnson H, Stronge J. Shoulder dystocia—is it predictable? Eur J Obstet Gynecol Reprod Biol 1995; 62:15.

4. Ouzounian JG, Gherman RB. Shoulder dystocia: are historic risk factors reliable predictors? Am J Obstet Gynecol 2005; 192:1933.

5. Langer O, Berkus MD, Huff RW, Samueloff A. Shoulder dystocia: should the fetus weighing greater than or equal to 4000 grams be delivered by cesarean section? Am J Obstet Gynecol 1991; 165:831.

6. MacKenzie IZ, Shah M, Lean K, et al. Management of shoulder dystocia: trends in incidence and maternal and neonatal morbidity. Obstet Gynecol 2007; 110:1059.

7. Dandolu V, Lawrence L, Gaughan JP, et al. Trends in the rate of shoulder dystocia over two decades. J Matern Fetal Neonatal Med 2005; 18:305.

8. Kim SY, Sharma AF, Sappenfield W, et al. Association of maternal body mass index, excessive weight gain, and gestational diabetes mellitus with large-for-gestational-age births. Obstet Gynecol 2014; 123:737.

9. Zhang C, Wu Y, Li S, Zhang D. Maternal prepregnancy obesity and the risk of shoulder dystocia: a meta-analysis. BJOG 2018; 125:407.

10. Dildy GA, Clark SL. Shoulder dystocia: risk identification. Clin Obstet Gynecol 2000; 43:265.

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Links

Title	Link