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ORIGINAL

COMPARATIVE ANALYSIS OF RECOVERY OUTCOMES AND PHYSICAL HEALTH IMPACTS BETWEEN FORCEPS DELIVERY AND EMERGENCY CESAREAN SECTION IN ATHLETES DURING ABNORMAL SECOND STAGES OF LABOR

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ABSTRACT

Objective: To assess the recovery outcomes and health impacts of forceps delivery versus emergency cesarean section in athletic women facing complications during the abnormal second stage of labor. **Methods:** A retrospective analysis was conducted on 100 athletic parturients with abnormal second stages of labor from February 2021 to February 2022. Participants were divided into two groups based on the mode of delivery: 50 underwent forceps delivery (observational group) and 50 underwent emergency cesarean sections (control group). The study aimed to evaluate the comparative clinical effectiveness of these interventions. **Results:** The observational group exhibited a shorter duration from decision to delivery, including quicker resolution of the second labor stage and faster fetal head delivery. Notably, this group also experienced reduced intrapartum and postpartum bleeding, and improved prognostic outcomes for both mother and newborn, compared to the control group. Specifically, neonatal Apgar scores at 1 and 5 minutes were significantly better in the observational group. Furthermore, these athletes reported higher satisfaction with the forceps delivery method, highlighting its potential benefits in terms of quicker physical recovery and return to training regimes. **Conclusion:** Forceps delivery may offer significant advantages for athletic women during the abnormal second stage of labor, ensuring safety for

both mother and child, better prognostic outcomes, and facilitating a faster return to athletic activities. This method merits further research and consideration in sports medicine and obstetric care **protocols.**

KEYWORDS: Parturients with anormal second stage of labor; Forceps delivery; Emergency cesarean section; Effectiveness; Security

1. INTRODUCTION

The second stage of labor, where the parturient actively pushes to deliver the baby, is a critical phase in childbirth. This stage can present complications that lead to what is termed an 'abnormal' second stage, defined by its duration exceeding typical time frames or by the fetus showing signs of distress. In such cases, medical intervention becomes necessary to ensure the safety of both mother and child. For athletic women, whose careers and lifestyles demand a rapid return to physical activity and high levels of physical fitness, the choice of intervention—forceps delivery or emergency cesarean section—can have significant implications not only for their immediate health but also for their long-term physical condition and ability to resume training. Forceps delivery and emergency cesarean section are two common interventions used to manage complications during the abnormal second stage of labor. Each method has distinct clinical implications and recovery trajectories. Forceps delivery, if performed skillfully, can expedite the birth process, potentially reducing the time a mother and fetus experience stress and thus minimizing immediate postpartum recovery time. This can be particularly advantageous for athletes, who benefit from shorter recovery periods. However, the technique requires precise execution to avoid injuries to both the mother and the newborn. Conversely, an emergency cesarean section, while generally safe and controlled, typically involves a longer recovery period due to the nature of the abdominal surgery. This can significantly delay an athlete's return to training and affect her physical conditioning in the long term. Moreover, the risks of surgical complications and longer-term physical issues such as adhesions and hernias are heightened, which can complicate an athlete's career trajectory and training regimen. Given these considerations, this study aims to explore and compare the clinical effectiveness and safety of forceps delivery and emergency cesarean sections specifically in athletic women experiencing an abnormal second stage of labor. We hypothesize that the quicker procedural and recovery times associated with forceps delivery may offer a strategic advantage by promoting better postpartum physical health outcomes and enabling a faster return to athletic training. However, the safety of the mother and neonate remains paramount, and thus, the study also closely examines the prognostic outcomes associated with each method to determine their viability and recommend practices that can be integrated into sports medicine and obstetric care for athletes. This exploration is crucial not only for the immediate health implications but also for the broader impact on the athletes' professional

lives and long-term physical well-being(Ortega, Peter, Hans, & garcia-hernandez, 2021). The decision between forceps delivery and emergency cesarean section in athletes must be informed by a comprehensive understanding of the physiological demands placed on women's bodies during labor, particularly in the context of high-performance sports. Athletes are known for their superior physical condition and resilience, but childbirth presents unique challenges that can affect even the most physically prepared individuals. Additionally, the psychological readiness of an athlete to engage in a possibly quicker but more physically demanding recovery (as with forceps delivery) versus a more controlled yet lengthier recuperation period (as in the case of a cesarean section) plays a critical role in the decision-making process. This choice is influenced by multiple factors, including the athlete's sport, position in their competitive cycle, and their psychological state regarding quick return to training(Maguire, abdelrahman, & Maguire, 2021; Nishibayashi & Okagaki, 2021; Saha, Pal, Halder, Dhara, & Saha, 2022). Furthermore, the implications of these childbirth interventions extend beyond immediate recovery. Long-term health concerns such as pelvic floor integrity, abdominal muscle recovery, and the potential for chronic pain or injury can have a substantial impact on an athlete’s performance and career longevity. Therefore, our study not only assesses the immediate clinical outcomes of forceps versus cesarean deliveries but also considers the broader implications on postpartum rehabilitation, retraining, and return to peak physical condition. In doing so, we aim to provide a guideline that could help sports physicians and obstetricians develop a tailored approach that aligns with the specific needs and career goals of athletic mothers, ensuring their health and competitive capabilities are maintained through optimal childbirth practices.

2. Data / Methods

2.1 Baseline Data

The clinical data of 100 cases with abnormal second stage of labor collected from February 2021 to February 2022 were retrospectively analyzed. They were grouped according to different delivery methods, with 50 cases in each group. Inclusion criteria: (1) All of them were full-term, singleton and cephalic pregnancy; (2) The patients were in line with the judgment on the abnormal second stage of labor in the expert consensus on the criteria and treatment of the new labor process in 2014, examples include the second stage of labor's stagnation or its extension; (3) The patients were in line with indications of cesarean section or low forceps operation (Medway, Sweet, & Müller, 2021); (4) The patients and their families were informed of the study and signed the informed consent form.

Exclusion criteria: (1) The parturients with fetal death, fetal malformation and unruptured fetal membrane; (2) Multiple and premature infants; (3) Patients

who were complicated with severe pregnancy complications, such as gestational diabetes mellitus, pregnancy induced hypertension, etc; (4) There were obvious cephalopelvic asymmetry and the head didn't appear first; (5) Patients with contraindications for this operation.

The average age of the parturients in the observation group was 30.52 ± 2.51 (23-38) years; the average gestational week was (40.32 ± 3.65) weeks, with a range of 38 to 42 weeks; the gravidity was 1 to 4, with an average of (2.55 ± 1.03) times; the delivery times were 0 to 3, with an average of (1.52 ± 0.32) times; there were 25 instances of protracted second stage labor and 25 instances of stagnation of second stage labor, which are the two main categories of aberrant second stage of labor.

The gestational weeks varied from 39 to 42 weeks, with an average of (40.55 ± 3.71) weeks for the parturients in the controlling team, whose average age was 30.58 ± 2.74 (24-38) years; the gravidity was 2 to 4, with an average of (3.25 ± 1.52) times; the delivery times was 1 to 3, with an average of (1.92 ± 0.44) times; the types of abnormal second stage of labor: there were 26 cases of prolonged second stage of labor, 24 cases of stagnation of second stage of labor. There was no significant difference in baseline data between the two groups (P > 0.05).

2.2 Methods

The two groups were intervened before delivery: ① Psychological intervention: The labor process is a dynamic process and is very complex. When the midwife conducts the pregnancy check-up for the parturients, it is necessary to inform them of the problems that may occur during the trial birth and the countermeasures, so as to eliminate the psychological concerns of the parturients, and also to inform the situation of the parturients' examination to relieve their tension.

② Environmental intervention: The operating room environment should be kept warmth and suitability. At the same time, soft and soothing music can be played according to the maternal preference, and the parturients should be guided to breathe correctly. Aromatherapy can also be chosen and lighten to relax the body parturients, relieve pelvic floor tenderness and uterine contraction pain, and promote the smooth delivery of the parturients. ③ Educational propaganda: The primiparas lack experience in childbirth and are prone to anxiety and fear, so the midwives need to inform them about the knowledge of childbirth so that they can eliminate concerns and actively cooperate with childbirth.

The control group was treated with emergency cesarean section: During the second stage of labor, if the parturients had exhaustion conditions, they needed to conduct cesarean section. The patients were treated with

conventional epidural combined with spinal epidural anesthesia, the transverse incision was taken, the patients' fat layer and peritoneum were stripped in turn, and then the patients' lower uterine segment was displayed in the field of vision, and a small incision was taken at the lower uterine segment to puncture the fetal membrane, and then the amniotic fluid was washed with an aspirator. An incision was cut again from the original incision in the lower uterine segment of the patients to slowly deliver the fetus by reaching into the maternal uterine cavity. After that, the uterine cavity was cleaned and then sutured and the abdominal incision of the patients needed to be sutured layer by layer. The patients were given preventive anti-infective drugs 3 days after operation.

The observation group was treated with low forceps operation: For the parturients who met the requirements of the operation, low forceps operation was needed for assisted delivery. The parturients were guided to select the position of bladder lithotomy position, and then routine block anesthesia was carried out in the perineum, and disinfection and towel laying were also required. The bone part under the fetal head of the patients needed to be determined before the operation to conduct lateral vaginal incision. The doctor needed to hold the forceps with his left hand, and the middle finger and right index finger were inserted into the vagina to check the fetal head and vaginal wall, and then the forceps were placed in the same way. After the forceps were checked and placed in place, they need to cooperate with the parturients to force. During uterine contraction, the traction forceps needed to be applied along the pelvic axis of the parturients, which could facilitate the delivery of the fetal forehead. In addition, the fetal oral and nasal mucus needed to be treated, and then the forceps should be taken out and inform the parturients that they should uniformly force to continue to deliver the fetus.

2.3 Observation Indexes

The indexes of the two groups were compared. Index ① the time from decision-making to delivery; Index ② perinatal related indicators; Index ③ neonatal prognosis outcome; Index ④ maternal prognosis outcome; Index ⑤ neonatal related indicators; Index ⑥ satisfaction.

2.4 Statistical Treatment

SPSS25.00 software was selected for statistics of all data in this study. If the result was < 0.05, it meant there was a difference.

3. Results

3.1 Comparison of the time from decision-making to fetal delivery between the two groups

Decision-making to fetal delivery took less time in the observational

team than in the controlling team (P<0.05), as displayed in Table 1, Figure 1:

Table 1: Contrast of the time from decision-making to fetal delivery (min)

TEAM	NUMBER OF INSTANCES (N)	TIME FROM DECISION-MAKING TO FETAL DELIVERY
OBSERVATION TEAM	50	14.28 ± 2.52
CONTROL TEAM	50	34.54 ± 3.84
T VALUE	-	31.149
P VALUE	-	0.000

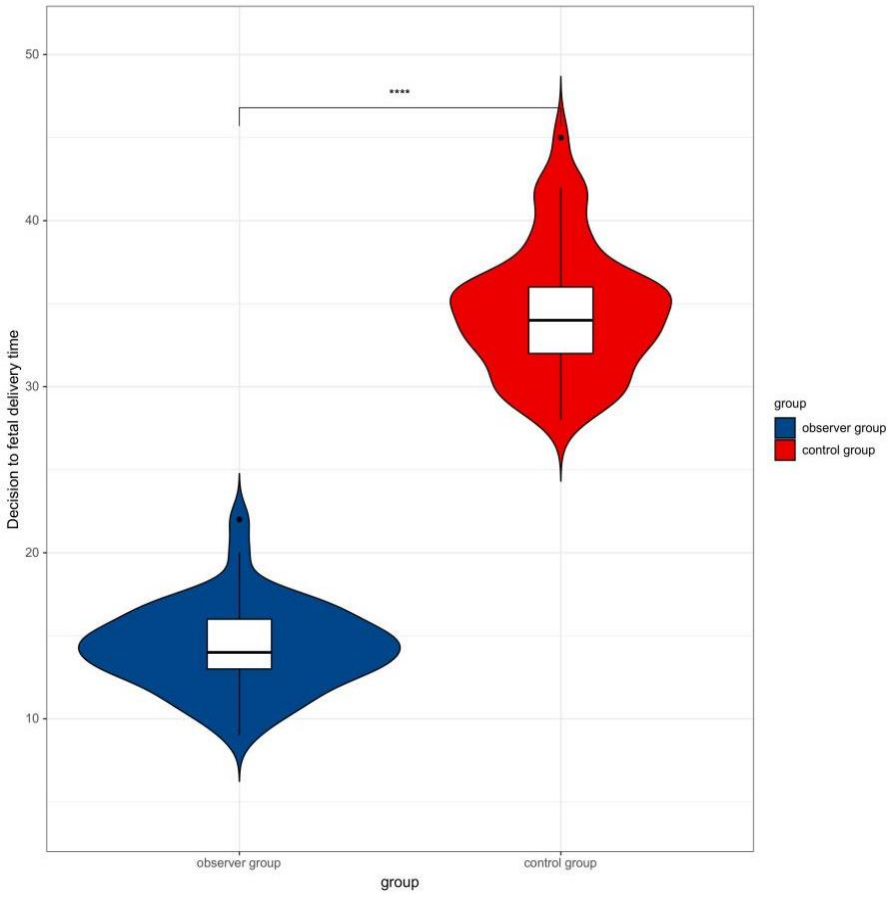

Figure 1: Comparison of the time from decision-making to fetal delivery

3.2 Comparison of the perinatal related indicators between the two teams

The duration of the second stage of labor, the time of delivery of the fetal head, and the length of stay were all shorter in the observational team than in the controlling team, whereas there was less postpartum and intrapartum bleeding in the observational team compared to the controlling team (P<0.05), as displayed in Table 2 and Figure 2:

Table 2: Contrast of perinatal related indicators

GROUP	TIME OF THE SECOND STAGE OF LABOR (MIN)	TIME OF FETAL HEAD DELIVERY (MIN)	THE AMOUNT OF INTRAPARTUM HEMORRHAGE (ML)	POSTPARTUM HEMORRHAGE (ML)	LENGTH OF STAY (D)
OBSERVATION GROUP	141.22 ± 3.25	6.24 ± 1.89	151.25 ± 5.85	177.52 ± 7.85	3.26 ± 1.03
CONTROL GROUP	152.24 ± 5.84	7.92 ± 1.03	226.58 ± 8.71	231.25 ± 9.52	7.50 ± 1.87
T VALUE	11.648	5.518	50.767	30.791	14.116
P VALUE	0.000	0.000	0.000	0.000	0.000

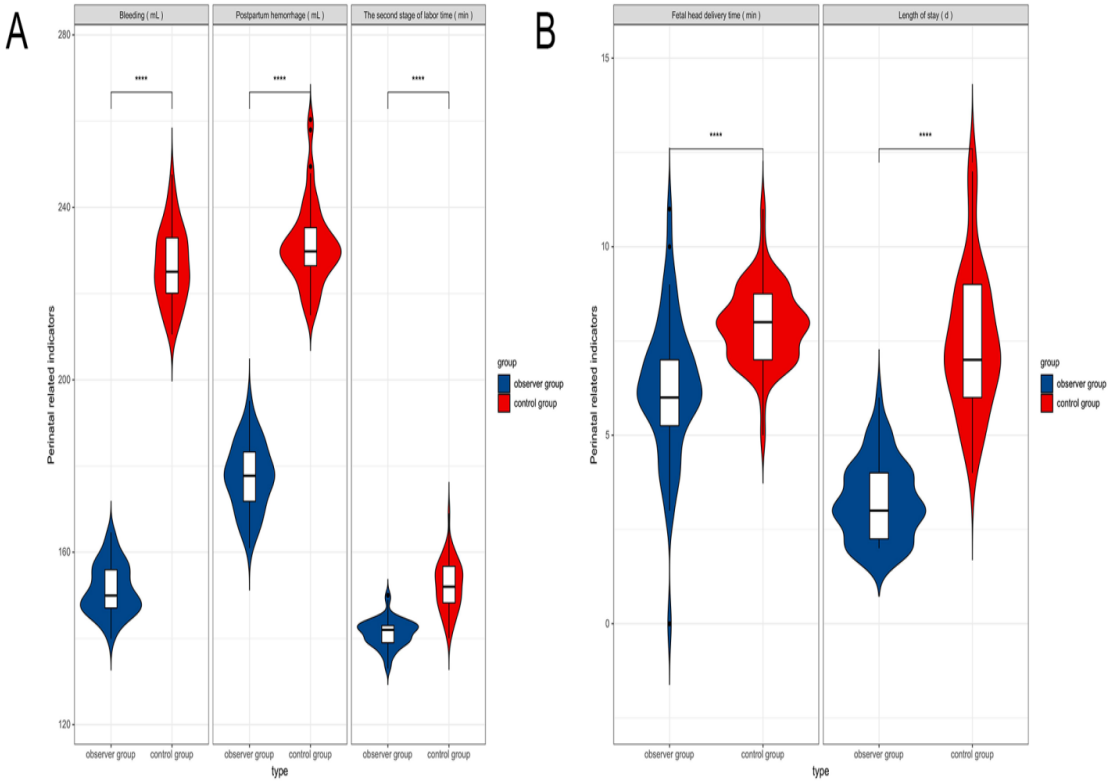

Figure 2: Contrast of perinatal related indicators

3.3 Neonatal prognosis outcomes of the two groups

The prognosis outcome of newborns in the observational team was better than that in controlling team (P<0.05, as displayed in Tabe 3, Figure 3:

Table 3: Contrast of the neonatal prognosis outcomes between the two teams (n; %)

GROUP	NUMBER OF CASES (N)	ASPHYXIA NEONATORUM	NEONATAL DEATH	NEONATAL ACIDOSIS	SCALP HEMATOMA	SKIN INJURY
OBSERVATION GROUP	50	1 (2.00)	0 (0.00)	2 (4.00)	1 (2.00)	1 (2.00)
CONTROL GROUP	50	8 (16.00)	7 (14.00)	10 (20.00)	9 (18.00)	9 (18.00)
X2	-	5.983	7.527	6.061	6.465	6.465
P	-	0.014	0.006	0.014	0.011	0.011

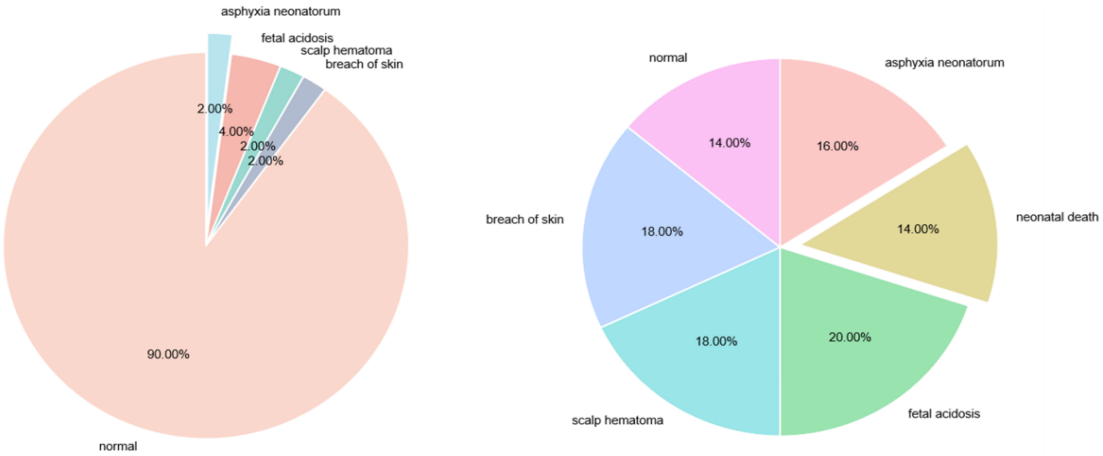

Figure 3: Contrast of the neonatal prognosis outcomes between the two groups

3.4 Comparison of the maternal prognosis outcomes

Compared with the control group, the maternal prognosis outcomes in the observation group were better (P<0.05). As displayed in Table 4 and Figure 4:

Table 4: Contrast of maternal prognosis outcomes between the two teams (n; %)

TEAM	NUMBER OF CASES (N)	POSTPARTUM HEMORRHAGE	SOFT BIRTH CANAL INJURY	PUERPERAL INFECTION
OBSERVATION TEAM	50	1 (2.00)	1 (2.00)	1 (2.00)
CONTROL TEAM	50	10 (20.00)	11 (22.00)	11 (22.00)
X2	-	8.274	9.470	9.470
P	-	0.001	0.002	0.002

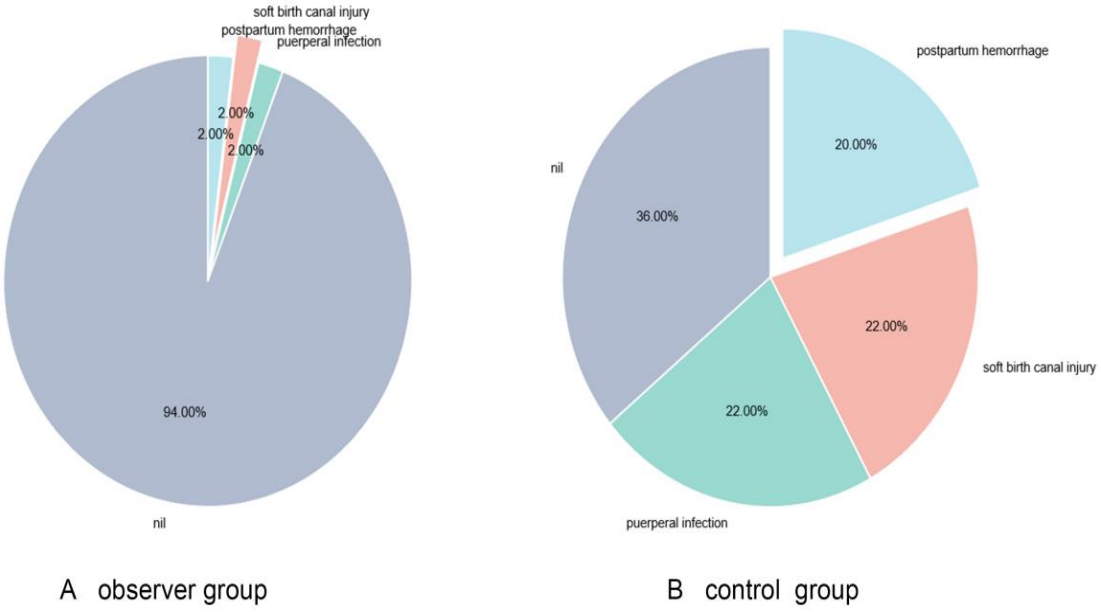

Figure 4: Comparison of the maternal prognosis outcomes between the two groups

3.5 Comparison of the relevant indicators of newborns in the two groups

There was no significant difference in birth weight and PH value of umbilical cord blood between the two groups (P > 0.05); however, the observational team's Apgar scores at 1 minute and 5 minute were higher than those of the controlling team (P < 0.05). As displayed in Table 5 and Figure 5:

Table 5: Contrast of indicators relating to neonatal health

GROUP	NUMBER OF CASES	BIRTH WEIGHT (KG)	1MIN APGAR SCORE (POINT)	5MIN APGAR SCORE (POINT)	PH VALUE OF UMBILICAL CORD BLOOD
OBSERVATION GROUP	50	3.82 ± 0.52	9.10 ± 1.53	9.48 ± 1.55	7.15 ± 0.71
CONTROL GROUP	50	3.85 ± 0.55	8.12 ± 1.47	7.94 ± 1.89	7.20 ± 0.72
T VALUE	-	0.280	3.244	4.512	0.350
P VALUE	-	0.780	0.002	0.000	0.727

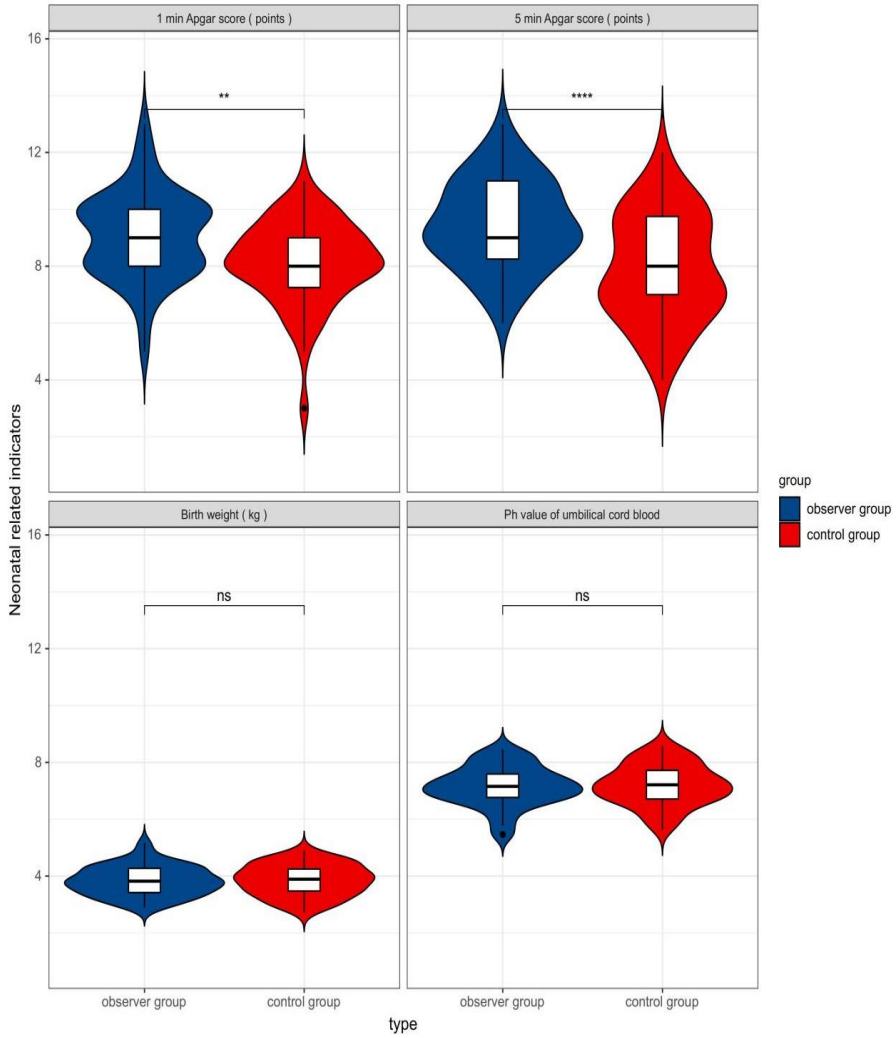

Figure 5: Contrast of indicators relating to neonatal health

3.6 Comparison of satisfaction

The observational team's contentment was higher contrasted to the controlling team (P < 0.05). As displayed in Table 6, Figure 6:

Table 6: Contrast of the two teams' levels of contentment (n; %)

GROUP	NUMBER OF INSTANCES (N)	EXTREMELY SATISFIED	SATISFIED	DISSATISFIED	TOTAL SATISFACTION
OBSERVATION GROUP	50	32	17	1	98.00
CONTROL GROUP	50	21	16	13	74.00
X2	-	-	-	-	11.960
P	-	-	-	-	0.000

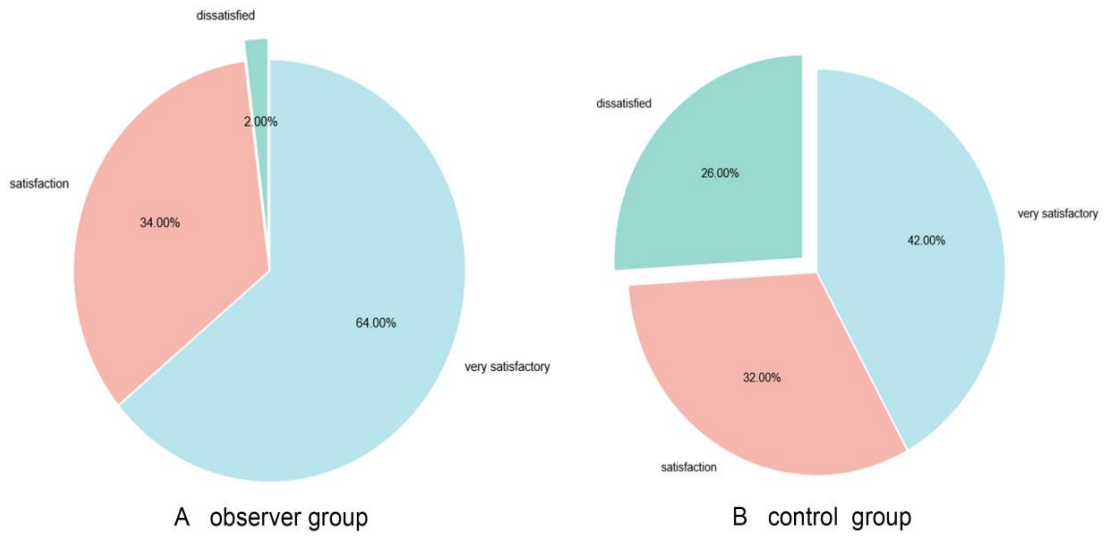

Figure 6: Contrast of the two teams' levels of contentment

4. Discussion

The cesarean section technology has been continuously improved in clinic, so that most parturients choose cesarean section to complete delivery when the second stage of labor is abnormal. Although this method can improve the success rate of fetal delivery, it is easy to increase maternal and infant complications, and seriously affect the maternal and infant prognosis (Rakchanok et al., 2022). For parturients with head position dystocia, forceps delivery is a better way with significant effects, especially for fetal distress, low straight posterior position of fetal head, failure of fetal head suction device, and extension of the second stage of labor. Forceps delivery can improve the natural childbirth rate, reduce the damage to the mother and fetus, and can also effectively reduce the incidence of neonatal asphyxia. This method can effectively reduce the selection rate of cesarean section. It is often necessary to carry out preoperative preparation in the process of cesarean section, including notifying the operating room, indwelling catheterization, anesthesia preparation, etc. and the above operations need take a long time, while forceps delivery can be realized directly in the delivery room, which can shorten the processing time and reduce the delivery time and the risk of postpartum hemorrhage (Newton, Dawson, Forster, & McLachlan, 2021; Rowe, Soe, Knight, & Kurinczuk, 2021). The use of forceps during birth can help deal with an atypical second stage of labor and lower the need for a cesarean section, while forceps delivery also has certain indications, mainly including: ① fetal distress; ② Prolonged second stage of labor, including macrosomia, uterine inertia, relative cephalopelvic asymmetry and persistent occipital posterior or occipital transverse position; ③ The parturients are complicated with pregnancy complications, such as pregnancy induced hypertension and heart disease, which need to shorten the time of the second stage of labor; ④ Parturients who failed to accept the vacuum extraction of fetal head, such as no obvious

abnormal fetal head position and failure of head basin; ⑤ The fetal head is in a low straight posterior position; ⑥ Breech primipara with larger fetal head can choose obstetric forceps to delivery aftercoming head. Forceps delivery has a certain role and is a means to improve the emergency situation. When used properly, this technique can speed up labor and lower the likelihood of a cesarean section, and can also reduce the operation cost. When abnormal conditions occur in the second stage of labor, it is an effective measure to apply low position forceps delivery for parturients who meet the indications. When the second stage of labor is prolonged, the bone of the fetal head has reached 2cm below the sciatic plane, and the lower uterine segment of the fetus is lengthened and thinned, and if the delivery method is converted to cesarean section at this time, it is easy to increase the difficulty of abdominal incision, resulting in the extension of the second stage of labor, which is easy to cause the risk of maternal bleeding. When the second stage of labor is prolonged, it is necessary to carry out low forceps operation, and the forceps used to clamp both sides of the fetal head can not only protect the fetal head, but also ensure uniform stress and it can increase the fetal delivery force by exerting force with uterine contraction to promote the smooth delivery of fetal head, which can shorten the second stage of labor and the delivery time of fetal head, and is conducive to the rescue of the extension of the second stage of labor (Banafsheh, zenab, & marzieh, 2022; Marie, lea, & MIHA, 2022; Way, cecutti-butler, & Irving, 2021). In this result, the time from the decision-making to fetal delivery in the observation group was shorter than that in the control group, indicating that forceps delivery can shorten the time-consuming, mainly because forceps delivery can be directly carried out in the delivery room, and the operation of perineal block anesthesia is very simple, and the effect is faster, which can simplify the operation process. Cesarean section needs complex preoperative preparations, and has high requirements for anesthesia, and it takes a long time to transfer to the operating room. It can effectively avoid the occurrence of intrauterine hypoxia in the second stage of labor by shortening the time from decision-making to fetal delivery, and also shorten the time of intrauterine hypoxia, so it can achieve the purpose of preventing neonatal asphyxia (Fedorka et al., 2021). The amount of intrapartum and postpartum bleeding in the observational team was lower than that in the controlling team in perinatal-related variables between the two teams, mainly due to the longer time spent in cesarean section, the longer duration of labor, and the influence of uterine atony and the compression time of soft birth canal, which all can lead to the increase of the amount of maternal bleeding. In addition, when the elasticity of the lower uterine segment becomes poor and the texture is brittle, it can have a certain impact on the contraction of maternal uterine smooth muscle. When the second stage of labor is abnormal, the fetal head is often in a low position, and most cases have gone deep into the pelvis, which increases the difficulty of removing the fetal head and at the same time, moreover, it may raise the risk of lower uterine segment incision ripping, which would enhance

bleeding, and incision hematoma formation (Doğru, Utli, & Aykar, 2021; Spiby, Stewart, Watts, Hughes, & Slade, 2021). In addition, because the labor phase was prolonged in the forceps team as opposed to the cesarean section team, the puerperal infection rate was lower in the forceps team, resulting in the increase of the time of membrane rupture and the frequency of vaginal examination. If the cervix is expanded for a long time, it was easy to cause upward bacterial infection in the uterine cavity. The uterine incision provides good conditions for bacterial invasion mainly by exposing blood vessels and lymphatic vessels in the muscle layer, and the bacteria in the amniotic cavity can also cause the direct pollution to the peritoneum and uterine incision, while the fetal head needs to be pushed up to remove the fetusin the emergency cesarean section, so the risk of postpartum infection can be increased. In addition, the amount of bleeding during and after cesarean section in cesarean section group were increased, resulting in the reduction of the body resistance, and the parturients are often accompanied with elevated body temperature after cesarean section, which is also easy to increase the risk of puerperal infection (Bogren, Kaboru, & Berg, 2021; Callander, Sidebotham, Lindsay, & Gamble, 2021). Neonatal asphyxia was less common in the forceps team, and the reasons for this result are as follows: Fetal distress is one of the important causes of neonatal asphyxia. The use of forceps delivery can quickly end the delivery, so that the fetus can get out of the hypoxic environment as soon as possible, so as to reduce the incidence of neonatal asphyxia, while cesarean section requires a long time for preoperative preparation, resulting in prolonged time of fetal hypoxia, and together with the influence of long pelvic floor compression time, fetal head block at a certain level of pelvis or low fetal head and other factors, which all can increase the risk of neonatal asphyxia (Jumah et al., 2021). The occurrence of neonatal asphyxia can affect their intellectual development, so it is necessary to correctly choose cesarean section or forceps delivery for parturients with abnormal second stage of labor to successfully complete the delivery. The results showed that both groups of newborns had scalp hematoma and skin damage, which is mainly caused by the extrusion of the scalp tissue by the birth canal, but the above content will not cause significant harm to the health of newborns. Relevant literature reports have shown that when the second stage of labor is abnormal, the caput succedaneum formed by the extrusion of the birth canal will not cause great harm to the human body, and it can basically subside within 24 hours, while the skin damage caused by forceps delivery can generally subside within 8 hours, and there will be no residual sequelae (OP de & peek Demi, 2021; van Leeuwen et al., 2021). Although cesarean section and forceps delivery are the treatment methods for the abnormal second stage of labor in clinical practice, there are still controversies about the influence of the two methods on neonatal prognosis and perioperative indicators. According to some researchers, choosing forceps delivery in very challenging deliveries can speed up fetal delivery and lower the likelihood of complications for both the mother and the baby; another scholar

believes that low forceps delivery is a high-risk factor for postpartum pelvic floor dysfunction compared with cesarean section (González-Timoneda, Hernández, Moya, & Blazquez, 2021). The findings of this research demonstrated that using low forceps during fetal head delivery could speed up the process, length of stay and the time of the second stage of labor, and also reduce the amount of bleeding during and after delivery, which suggests that low forceps operation has more advantages in parturients with abnormal second stage of labor. The reason is that the above two operations are traumatic operations. This study found that after the two operations, the Apgar scores at 1 minute and 5 minutes were compared between the two groups and found that the scores were higher in the observation group, which proves that the forceps delivery operation has less impact on the various indicators of newborns (De Wolff et al., 2021). Following investigation, it is believed that prompt therapy for the prolongation of the second stage of labor can shield the babies from the effects of surgery. Other studies have shown that the extension of the second stage of labor is closely related to acidosis and fetal hypoxia. Also, this research took into account that neonates having a cesarean section had lower levels of acidosis than the team using low forceps, which is roughly similar to that reported in other literature, which then effectively reflects that the low forceps operation has little impact on the prognosis of newborns and can effectively reduce the risk of fetal asphyxia. Through the analysis of the data in this paper, the forceps delivery group has significant advantages, mainly because that cesarean section needs the preoperative preparation before conducting, such as blood preparation, anesthesia preparation, indwelling catheter, etc., and notifying the operating room for preparation, which needs long preparation time, while the forceps delivery is carried out in the delivery room with a short time, which can help the fetus quickly escape from hypoxia and relieve their status, which can significantly reduce the neonatal asphyxia rate. In the process of this study, the observational team experienced considerably less postpartum bleeding than the controlling team did, which is because the labor process of parturients undergoing cesarean section is longer, and compression time of the lower uterine segment is longer, which is easy to affect the contraction of uterine smooth muscle, and in addition, the position of fetal head is lower during the second stage of labor, which is easy to lead to the tearing of the incision of the lower uterine segment, thus leading to the increase of the amount of postoperative bleeding. At the same time, due to the prolonged labor process of cesarean section, the time of rupture of membranes is prolonged and when the bacteria are retrograde infected, the amniotic fluid is easy to pollute the incision because of the many times of vaginal examinations in the second stage of labor, resulting in the decline of neonatal resistance. At the same time, it should be noted that nursing cooperation should be adopted in the intervention of parturients with abnormal second stage of labor, so as to facilitate the delivery of the fetus. The parturients will occur the situation of physical discomfort due to the influence of labor throes, appearing the negative emotions,

such as depression, anxiety and tension, which are easy to affect the endocrine system of the parturients and ultimately affect the delivery results. Therefore, some scholars believe that it is necessary to provide medication as directed, midwifery care, signs monitoring and other operations for parturients. In addition, it is also necessary to carry out intervention according to the psychological characteristics of the parturients, such as explaining the successful cases of delivery to the parturients to alleviate the adverse situation of the parturients, which can facilitate the parturients to cooperate with various nursing and ensure the safety of the mothers and infants. In addition, some literature shows that if the cesarean section complications continue increase, the parturients easily occur the situations of endometriosis, intestinal obstruction and intestinal adhesion, which will lead to an increased risk of incision pregnancy. This study has critically assessed the clinical effectiveness and safety of forceps delivery compared to emergency cesarean section in managing abnormal second stages of labor in athletic women. The findings underscore that forceps delivery, when executed with precision, not only shortens the duration from decision to birth but also reduces recovery time, which is crucial for athletes keen on resuming training as promptly as possible. The reduced intrapartum and postpartum bleeding and the superior prognostic outcomes for both mother and newborn associated with forceps delivery further enhance its attractiveness as a viable option for athletic parturients. Moreover, the increased satisfaction rates reported in the observational group suggest that forceps delivery can be a more favorable approach when considering the psychological and physical readiness of athletes to return to their sporting careers. However, the choice of delivery method should always be tailored to the individual's health status, labor progression, and personal preferences, with a clear communication between the obstetric team and the patient regarding the risks and benefits of each option. Ultimately, incorporating these findings into clinical practice could revolutionize obstetric care for athletes by emphasizing quicker recovery interventions that do not compromise safety. The study advocates for a multidisciplinary approach involving obstetricians, sports physicians, and rehabilitation specialists to optimize postpartum recovery and facilitate a seamless transition back to peak athletic performance. Further research is warranted to explore long-term outcomes and to refine protocols that can be standardized for use in sports medicine and obstetric care, thereby ensuring that every athlete receives personalized and effective treatment during and following the labor process.

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