

Training and Coaching of Female vs. Male Endurance Athletes on their Road to Gold. Perceptions among Successful Elite Athlete Coaches

Training und Coaching von weiblichen vs. männlichen Athleten auf ihrem Weg zu Gold? Einschätzungen erfolgreicher Trainer von Eliteathleten

ACCEPTED: October 2022

PUBLISHED ONLINE: November 2022

Bucher Sandbakk S, Tønnessen E, Haugen T, Sandbakk Ø. Training and coaching of female vs. male endurance athletes on their road to gold. Perceptions among successful elite athlete coaches. Dtsch Z Sportmed. 2022; 73: 251-258. doi:10.5960/dzsm.2022.549

Summary

- ▶ **This scientific short report investigated** how successful male coaches perceive gender differences in training characteristics and coaching practice among medal-winning endurance athletes.
- ▶ **Ten male Norwegian coaches** with a track record of coaching both female and male endurance world-class athletes (total of 269 Olympic, World and European Championship medals) participated in semi-structured interviews. Inductive thematic analysis revealed that all coaches mainly adjusted their key training and coaching principles to the individual athlete, rather than gender. A coach-driven and athlete-centered individualization process was essential to create trust, mutual understanding, and optimal training content. Potential gender/sex differences were perceived in four main themes: sport-specific competition demands, physiological, psychological and interpersonal factors (e.g., gender of the coach).
- ▶ **In this context, all coaches described** how training and coaching of female athletes differs from that of men, thus considering male athletes as the reference group and male physiology and psychology as the norm. Furthermore, societal factors such as a male-dominant sports culture and underlying gender stereotypes were suggested as amplifiers of gender differences.
- ▶ **Accordingly, our report highlights** the need for female perspectives in elite sports and invites further in-depth investigations of the identified gender/sex differences within the respective disciplines of training science, physiology, psychology and sociology.

Zusammenfassung

- ▶ **Dieser Kurzreport analysiert** die Erfahrungen von Trainern erfolgreicher Eliteausdauersportler bezüglich geschlechtlicher Unterschiede in Training und Coaching von männlichen und weiblichen Athleten.
- ▶ **Zehn männliche Trainer aus Norwegen**, die bereits männliche und weibliche Weltklasseathleten in Ausdauersportarten (269 Olympische, Weltmeisterschafts- und Europameisterschaftsmedaillen) wurde im Rahmen semi-strukturierter Interviews befragt. Die induktive thematische Analyse erbrachte, dass alle Coaches die Trainingsprinzipien und -praktiken primär nach individuellen Gesichtspunkten und weniger auf Basis des Geschlechts angepasst haben. Dieser vom Trainer gesteuerte und auf den Athleten fokussierte Prozess war essentiell für Vertrauen, Zusammenarbeit und optimale Trainingsgestaltung. Potenzielle Geschlechterunterschiede wurden bei vier Hauptkategorien ersichtlich: wettkampfspezifische Erwartungen, physiologische, psychologische und interpersonelle Faktoren (z. B. Geschlecht des Trainers).
- ▶ **Alle Coaches beschrieben**, wie sich Training von Frauen von dem von Männern unterscheidet, es deutete sich damit eine Wahrnehmung der männlichen Physiologie und Psychologie als «Norm» beziehungsweise «Referenz» an. Gesellschaftliche Faktoren wurden in diesem Kontext als Verstärker angesehen, beispielsweise eine männlich-dominierte Sportkultur und Geschlechterstereotype.
- ▶ **Daher dient diese Arbeit dazu**, auf die Wahrnehmung der weiblichen Perspektive von Elitesport hinzuweisen und plädiert für weiterführende trainingswissenschaftliche, physiologische, psychologische und soziologische Studien zu den hier identifizierten geschlechtsbezogenen Differenzen.

KEY WORDS:

Coaching, Endurance Training, Gender Differences, Sex Difference, Training Science

SCHLÜSSELWÖRTER:

Coaching, Ausdauertraining, Geschlechterunterschiede, Trainingswissenschaften

Introduction, Problems and Aim

Numerous scientific investigations have described basic training characteristics and physiological profiles of female and male world-class endurance athletes (5, 12, 18, 19). Still, our scientific understanding of the many factors included in the complex interaction regulating performance development is limited. To cope with this, successful coaches use their intuition, experience, and tradi-

tion when prescribing training to elite athletes (5). History has shown that the best coaches often are years ahead of sport science in employing the critical features of training and coaching, and a recent editorial by Haugen (4) highlighted that knowledge derived from successful coaches may be an untapped source of information in the sport-science literature. ▶

1. NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, *Department of Teacher Education, Faculty of Social and Educational Sciences, Trondheim, Norway*
2. KRISTIANIA UNIVERSITY COLLEGE, *School of Health Sciences, Oslo, Norway*
3. UIT THE ARCTIC UNIVERSITY OF NORWAY, *School of Sport Sciences, Tromsø, Norway*
4. NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, *Centre for Elite Sports Research, Department of Neuromedicine and Movement Science, Trondheim, Norway*



Article incorporates the Creative Commons Attribution – Non Commercial License. <https://creativecommons.org/licenses/by-nc-sa/4.0/>



Scan QR Code and read article online.

CORRESPONDING ADDRESS:

Professor Øyvind B. Sandbakk
Norwegian University of Science and Technology
Centre for Elite Sports Research (Toppidrettsenteret i Granåsen)
Smistadvegen 11, 7026 Trondheim, Norway
✉ : oyvind.sandbakk@ntnu.no

One of the areas with limited knowledge is whether women and men should be trained and coached differently. Although the performance differences between women and men have stabilized in the last decades (13), there are sex-specific performance pathways (6, 17, 20) as well as different physiological and psychological profiles (1, 8, 9). However, the possible implications for training prescriptions and coaching practices are not well studied. The perceptions of coaches with success in coaching both genders would provide a valid starting point for thematic identification of main themes of gender differences and thereby generation of new hypotheses in this area.

By acknowledging the (unfortunate) fact that elite coaches are mainly men, the aim of this study was to investigate how successful Norwegian male coaches perceive gender differences in training characteristics and coaching practices among medal-winning endurance athletes.

Material and Methods

Study Design and Procedures

Ten male Norwegian coaches with a track record of coaching medal-winning female and male endurance athletes took part in this study (table 1).

Personal semi-structured interviews related to key topics within endurance training and coaching (planning, organization and periodization of the training year, competitive activity, amount of training, intensity, altitude training, tapering, testing and athlete follow-up), including questions focusing on gender differences, were performed. Approximately 180 min audio recording from each interview was transcribed and approved by the respective coach. Formal translation and back-translation from Norwegian to English was performed by the first and last author, respectively, and approved by all co-authors. The study followed the institutional requirements and was pre-approved by the Norwegian Centre for Research Data (reference #605672). Prior to the study, the coaches provided a written informed consent to participate.

Analyses

Thematic analysis was performed following the six steps suggested by Brown & Clarke (2). Step one included familiarization with the data and initial discussion on findings among all authors. Following an inductive approach, a total of 105 raw themes on perceived gender differences in training content and coaching practice were identified (step 2) and systematized into preliminary themes (step 3) by the first author. Revisions of themes and validation against the interviews (step 4) were subject to discussion and negotiation among all authors. For a final definition of themes (step 5), theories on training science and the coach-athlete relationship (7), as well as practical relevance, were considered. Finally, all authors contributed to write the final manuscript (step 6).

Six higher-order themes emerged: 1) individual differences exceed gender/sex-differences, 2) societal and cultural factors, 3) different sport-specific competition demands, 4) physiological factors, 5) psychological factors and 6) interpersonal factors. Higher-order themes 1) and 2) served as a framework, whereas the themes 3)-6) were further divided into the following sub-themes: a) perceived sources of gender/sex differences and b) practical manifestations of gender/sex differences in training characteristics and coaching practice.

Rigor

In line with guidelines for high-quality qualitative research advocated by Tracy (15), we ensured that the eight criteria of worthy topic, rich rigor, sincerity, credibility, resonance, significant contribution, ethics, and meaningful coherence were adhered to.

Results and Discussion

This study investigated how successful Norwegian male coaches perceive gender differences in training characteristics and coaching practice among medal-winning endurance athletes. Inductive thematic analysis revealed that all coaches mainly adjusted their key training and coaching principles to the individual athlete, rather than gender. A coach-driven and athlete-centered individualization process was essential to create trust, mutual understanding and optimal training content. Through this process, potential gender/sex differences were perceived within four main themes: a) sport-specific competition demands, as well as b) physiological, c) psychological and d) interpersonal factors. In this context, all coaches elaborated on how training and coaching of female athletes deviate from that of men, thereby considering male athletes as the reference group, and male physiology and psychology as the norm. Furthermore, societal factors such as a male-dominant sports culture and underlying gender stereotypes were suggested as amplifiers of gender differences.

All coaches communicated clear training philosophies where key training and coaching principles are mainly adjusted to the individual athlete, rather than gender. Creation of trust and mutual understanding was regarded as the foundation for this process, in which training content was optimized based on a detailed analysis of the athlete's physiological and psychological profiles in relation to the sport-specific demands. Typical statements from the coaches include:

C2: *«I have, however, reached the conclusion that differences between individuals are larger than the differences between genders. Therefore, I think that the most important thing we as coaches can do is to individualize the training based on the person we are supposed to support and develop.»*

C9: *«There are probably greater differences between individuals than there are between female and male athletes. For both sexes, it is important to have mutual respect in the collaboration between coach and athlete and requires time being spent on building the relationships between the athletes and between coach and athlete. Circumstances that help to create trust are that there is predictability and security with the athlete. If I should train athletes, we must have a chemistry and mutual respect.»*

Through this process, the coaches perceived gender differences within four main themes as detailed in table 2. Notably, the observation of these differences was often based on the above-described individualized approach:

C5: *«The individual process for doing the right priorities in the planning phase [...] leads to the content of the training - so the outcome can of course differ among athletes, and should there be any gender differences, e.g., adjusting training to the menstrual cycle, this is picked up through a thorough analysis and planning process.»*

Table 1

The 10 male Norwegian coaches with a track record of coaching world-class female and male endurance athletes to 263 medals in Olympic, World and European Championships.

ID	SPORT
C1	Rowing
C2	Triathlon
C3	Cycling
C4	Cross-country skiing
C5	Cross-country skiing
C6	Biathlon
C7	Swimming
C8	Ice skating
C9	Biathlon
C10	Athletics

Many of the investigated endurance sports include fewer and/or shorter competitions for women, which consequently influence how training sessions are designed to meet the competition-schedule and the sport-specific competition demands. For example, in cycling there are fewer and shorter races for women (14), while in biathlon and cross-country skiing competitions have so far been shorter for women (12). In addition, equipment can be relatively heavier for women such as the rifle in biathlon (16). On the contrary, endurance events in athletics have similar distances and thereby longer competition times in women (3). Obviously, these factors affect the planning and execution of training.

Lower tolerance for muscular loads due to physical and anatomical differences in women compared to men was suggested by some of the coaches. Consequently, earlier introduction to and more emphasis on strength training was suggested for female athletes. Another perception among the coaches was that hormone-driven and biological sex-differences typically lead to stagnation in performance development during middle-to-late adolescence in girls, but not in boys (17). In addition, the menstrual cycle may have an impact on training and performance in some women (18). Interestingly, none of the coaches had a clear strategy on how these factors should be handled which is in line with current literature, suggesting individual approaches to menstrual cycle adjustments (10). However, one of the coaches argued that performance-expectations in female athletes during puberty and late adolescence should be modified by coaches, stakeholders, and the athletes themselves:

C10: «This means that we must have considerably more patience with female athletes, and thus not rush the training progression. [...] the lack of progress is probably because much of the specific effect (e.g., high anaerobic training load and artificially low body weight) was maximized too early in terms of age. [...] Internationally, many medal winners are well beyond 30 y of age.»

From a psychological point of view, some of the coaches perceived female athletes to follow training plans more thoroughly and to be less independent than men. Other coaches perceived

female athletes as less resilient and in need of more support in the face of adversity, as well as more emotional, sensitive and insecure. Although studies of general populations indicate that women use different and a wider range of emotion regulation strategies compared to men (11), this aspect, as well as the possible implications for coaching, need to be studied more carefully in sport. One consequence, especially for male coaches, may be that more time is required to gain safety and trust in a good coach-athlete relationship with female athletes.

Influence of interpersonal factors such as the role of their gender on coaching-requirements were also perceived by some of the coaches. Most of the coaches found it easier to interact with men where they could communicate more directly. In this context, all coaches in our sample elaborated on how training and coaching of female athletes deviated from that of men, thereby considering male athletes as the reference group and male physiology and psychology as the norm. This highlights the need for female perspectives and coaches in elite sports. As illustrated by one of the coaches, societal factors such as a male-dominant sports culture and underlying gender stereotypes may even be amplifiers of gender differences:

C9: «The big challenge is that female athletes are often treated differently than male athletes. I have experienced this both among coaches and other staff. My experience is that there is greater acceptance for boys to be heard when they propose that training should be individualized, even when this individualization leads to deviation from the team's plan. If the boys propose such changes, they are perceived as smart and innovative. If the girls propose the same type of changes, they are perceived as "difficult". This is challenging, and I am extremely motivated to erase this discrimination. I therefore encourage female athletes to suggest how we can best individualize the training and competition plan. In addition, I work actively with coaches and other staff in the national team system, making them aware of the discrimination that often occurs and more open-minded regarding inputs from female athletes. [...] We have a long way to go in the way we treat women.» >

Conclusions

This short report showed that successful male coaches intend to tailor training content and coaching practice to the individual athlete, rather than gender. A coach-driven and athlete-centered individualization process appears essential to create trust, mutual understanding, and optimal training content for endurance athletes on their road to gold. In this process, potential gender/sex-specific differences in competition demands, physiology and psychology, as well as interpersonal factors such as the gender of the coach should be considered. Awareness of societal factors such as a male-dominant sports culture and underlying gender stereotypes as amplifiers of gender differences may additionally be important. In this context, all coaches described how training and coaching of female athletes differs from that of men, thus considering male athletes as the reference group and male physiology and psychology as the norm. Our report highlights the need for female perspectives in elite sports and invites further in-depth investigations of the identified gender/sex differences within the respective disciplines of training science, physiology, psychology and sociology. ■

Acknowledgements

We are grateful to all the coaches who have participated in this study and shared their extensive experience and knowledge.

Conflict of Interest

The authors have no conflict of interest.

References

- (1) **BEUNEN GP, MALINA RM, RENSON R, SIMONS J, OSTYN M, LEFEVRE J.** Physical activity and growth, maturation and performance: a longitudinal study. *Med Sci Sports Exerc.* 1992; 24: 576-585.
- (2) **BRAUN VCV.** Thematic analysis. In (Ed): American Psychological Association; 2012.
- (3) **HALLAM LC, AMORIM FT.** Expanding the Gap: An Updated Look Into Sex Differences in Running Performance. *Front Physiol.* 2022; 12: 804149. doi:10.3389/fphys.2021.804149
- (4) **HAUGEN T.** Best-Practice Coaches: An Untapped Resource in Sport-Science Research. *Int J Sports Physiol Perform.* 2021; 16: 1215-1216. doi:10.1123/ijsp.2021-0277
- (5) **HAUGEN T, SANDBAKK O, SEILER S, TØNNESEN E.** The Training Characteristics of World-Class Distance Runners: An Integration of Scientific Literature and Results-Proven Practice. *Sports Med Open.* 2022; 8: 46. doi:10.1186/s40798-022-00438-7
- (6) **HAUGEN TA, SOLBERG PA, FOSTER C, MORAN-NAVARRO R, BREITSCHADEL F, HOPKINS WG.** Peak Age and Performance Progression in World-Class Track-and-Field Athletes. *Int J Sports Physiol Perform.* 2018; 13: 1122-1129. doi:10.1123/ijsp.2017-0682
- (7) **MAGEAU GA, VALLERAND RJ.** The coach-athlete relationship: a motivational model. *J Sports Sci.* 2003; 21: 883-904. doi:10.1080/0264041031000140374
- (8) **MALINA RM.** Physical growth and biological maturation of young athletes. *Exerc Sport Sci Rev.* 1994; 22: 280-284. doi:10.1249/00003677-199401000-00012
- (9) **MALINA RM, ROGOL AD, CUMMING SP, COELHO E SILVA MJ, FIGUEIREDO AJ.** Biological maturation of youth athletes: assessment and implications. *Br J Sports Med.* 2015; 49: 852-859. doi:10.1136/bjsports-2015-094623
- (10) **MCNULTY KL, ELLIOTT-SALE KJ, DOLAN E, SWINTON PA, ANSDALL P, GOODALL S, THOMAS K, HICKS KM.** The effects of menstrual cycle phase on exercise performance in eumenorrhoeic women: a systematic review and meta-analysis. *Sports Med.* 2020; 50: 1813-1827. doi:10.1007/s40279-020-01319-3
- (11) **NOLEN-HOEKSEMA S.** Emotion regulation and psychopathology: the role of gender. *Annu Rev Clin Psychol.* 2012; 8: 161-187. doi:10.1146/annurev-clinpsy-032511-143109
- (12) **SANDBAKK O, HOLMBERG HC.** Physiological Capacity and Training Routines of Elite Cross-Country Skiers: Approaching the Upper Limits of Human Endurance. *Int J Sports Physiol Perform.* 2017; 12: 1003-1011. doi:10.1123/ijsp.2016-0749
- (13) **SANDBAKK O, SOLLI GS, HOLMBERG HC.** Sex Differences in World-Record Performance: The Influence of Sport Discipline and Competition Duration. *Int J Sports Physiol Perform.* 2018; 13: 2-8. doi:10.1123/ijsp.2017-0196
- (14) **SANDERS D, VAN ERP T, DE KONING JJ.** Intensity and Load Characteristics of Professional Road Cycling: Differences Between Men's and Women's Races. *Int J Sports Physiol Perform.* 2019; 14: 296-302. doi:10.1123/ijsp.2018-0190
- (15) **TRACY SJ.** Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qual Inq.* 2010; 16: 837-851. doi:10.1177/1077800410383121
- (16) **STAUNTON CA, SLOOF L, BRANDTS M, JONSSON KARSTROM M, LAAKSONEN MS, BJORKLUND G.** The Effect of Rifle Carriage on the Physiological and Accelerometer Responses During Biathlon Skiing. *Front Sports Act Living* 2022; 4: 813784. doi:10.3389/fspor.2022.813784
- (17) **TØNNESEN E, SVENDSEN IS, OLSEN IC, GUTTORMSEN A, HAUGEN T.** Performance development in adolescent track and field athletes according to age, sex and sport discipline. *PLoS One.* 2015; 10: e0129014. doi:10.1371/journal.pone.0129014
- (18) **TØNNESEN E, SVENDSEN IS, RONNESTAD BR, HISDAL J, HAUGEN TA, SEILER S.** The annual training periodization of 8 world champions in orienteering. *Int J Sports Physiol Perform.* 2015; 10: 29-38. doi:10.1123/ijsp.2014-0005
- (19) **TØNNESEN E, SYLTA O, HAUGEN TA, HEM E, SVENDSEN IS, SEILER S.** The road to gold: training and peaking characteristics in the year prior to a gold medal endurance performance. *PLoS One.* 2014; 9: e0101796. doi:10.1371/journal.pone.0101796
- (20) **WALTHER J, MULDER R, NOORDHOF DA, HAUGEN TA, SANDBAKK O.** Peak Age and Relative Performance Progression in International Cross-Country Skiers. *Int J Sports Physiol Perform.* 2022; 17: 31-36. doi:10.1123/ijsp.2021-0065

Table 2 – Part 1

Overview of the higher-order themes on perceived sources and practical manifestations of gender/sex differences in training characteristics and coaching practice by 10 successful male Norwegian coaches.

MAIN THEME	SOURCES OF GENDER DIFFERENCES	PRACTICAL MANIFESTATION OF GENDER/SEX DIFFERENCES
Different sport-specific competition demands	Differences in absolute performance, i.e., female athletes move slower at the same relative internal intensity (3)	Differences in sport-specific competition demands require female athletes to train different than men, for example to train more explosively (1) and more at the high intensities (1)
	Larger muscular load at the same relative internal intensity in training and competition for female athletes (2)	Female athletes perform fewer absolute distances given the same training duration (2)
	Fewer (1) and shorter (1) competitions for female athletes in some sports	Female athletes tolerate less (2) and respond less positively (1) to long sessions at moderate to high-intensities (zones 3 and 4) due to greater muscular load
	Equipment (e.g. biathlon weapon) is heavier relative to body mass for female athletes (1)	Female athletes need more variation in speed and terrain to avoid monotone muscular load (1)
	Different progression in qualification requirements in some sports (e.g. steeper increase from junior/U23 to elite level in athletics) (1)	
	C3: "They [the female athletes] compete less, and on shorter distances. This difference in sport-specific competition demands leads to a larger proportion of training at high intensities for women – especially in intensity-zones 3-4. In addition, I have to work more purposefully and specifically with the explosive and technical execution of attacks during races. They probably also had less training on this at younger ages because of fewer and other types of competitions for young female cyclists compared to boys".	
	C9: "My assumption is that girls tolerate less [long endurance sessions at around zone 3], as the muscular load is greater for girls. This is because the weapon is relatively heavier to carry for female athletes, and that the competition courses and terrain are perceived as more demanding, compared to male athletes. This may also be the reason why the female athletes I have trained have tolerated slightly lower training volumes than male athletes."	
Physiological factors	C7: "At senior level, we see that the best female long-distance swimmers train as much as the best male swimmers in terms of hours, but about 100-300 km less per year because they swim slower. Distribution of intensity should be the same."	
	Different physical and anatomical prerequisites, such as lower relative strength, different technical solutions, and lower tolerance for muscular load in women (4)	Different technical (2) and tactical (1) solutions for female compared to male athletes
	The menstrual cycle may influence both training quality and load tolerance (2)	Female athletes need a greater focus on strength and power in their training (2)
	Earlier maturation in female athletes influences the training history towards elite level (e.g., female swimmers have trained more during puberty) (2)	Female athletes tolerate less monotonous muscular load (e.g., in skating positions) or long sessions at high intensities (2)
	Different hormonal responses result in performance stagnation in female athletes during puberty and late adolescence (1)	Women should not directly learn from male examples (e.g. technique) (1)
		Possible adjustment of training load to the menstrual cycle (2)
		Important to build a solid training base (1) and to be patient (2) in female athletes during early career
	C1: "My experience is that female rowers have a greater need to focus on strength and power in their training."	
	C7: "Internationally, we see that the best female swimmers train more than male swimmers during puberty. This is because they reach puberty about two years before the boys."	
	C9: "In my mind, the technique must be different for girls and boys. When I coach girls on technique, I do not want to use male role models that they should imitate. This is because boys often have completely different physical prerequisites than girls [...]. I feel that the girls possibly need a little more speed variation, and less monotonous terrain and speed than what applies to boys."	
C6: "They [the female athletes] may have to adjust training load to the menstrual cycle."		
C9: "Possibly this [that girls tolerate less long endurance sessions at zone 3] is also due to physiological differences."		
C8: "The differences I have noticed, are that girls probably tolerate a bit less volume at the high intensities, but tolerate as many hours at lower-intensity training [compared to men]. They also tolerate a bit less in the speed skating position."		

Table 2 – Part 2

Overview of the higher-order themes on perceived sources and practical manifestations of gender/sex differences in training characteristics and coaching practice by 10 successful male Norwegian coaches.

MAIN THEME	SOURCES OF GENDER DIFFERENCES	PRACTICAL MANIFESTATION OF GENDER/SEX DIFFERENCES
Psychological factors	Female athletes are more conscientious (e.g., follow plan more thoroughly) (2) and less independent (1)	It takes more time [for male coaches] to build a good coach-athlete relationship (2) and build trust (2) with female athletes
	Female athletes have greater need for a good coach-athlete relationship (1), safety (1) and trust (1)	Coaches should empower female athletes to speak up/give inputs (1) and encourage curiosity for training (2)
	Female athletes are perceived less resilient (2) and need more support (2) in the face of adversity	Coaches need to stimulate ownership of training in female athletes (1)
	Female athletes are more emotional (2), sensitive (2) and insecure (1)	Coaches need to listen more (2) and more thoroughly (1) to female athletes
	Male athletes are perceived to be more interested in the training process (3)	
	Female athletes are treated differently than men by their sporting environment, thus enforcing psychological gender differences (1)	
	C8: <i>“As a group, girls probably have an even more pronounced need for trust and a close and good relationship with the coach. Girls are often a bit more insecure compared to boys and need that the coach helps building self-confidence and self-efficacy in female athletes.”</i>	
	C3: <i>“Girls are often even more conscientious [than boys] and have difficulties to drop a training session.”</i>	
	C2: <i>“... probably there are even larger differences among individuals than across genders, but my experience is that girls are more driven by emotions, compared to boys.”</i>	
	C4: <i>“But generally, women are perceived as less resilient in the face of adversity and need more support when things are difficult.”</i>	
Interpersonal factors	Communication with male athletes can be more direct (6)	Male coaches are cautious to negatively impact female athletes' self-confidence and self-esteem (2)
	Female coaches could likely be more direct with female athletes (2)	Coaches should involve female athletes more in the training and development process (2)
	Communication needs to be more thorough with female athletes (2) and you can expect to get more questions (1)	The coach-athlete relationship (e.g., communication style) may be colored by gender (2)
	Male athletes often wish to be more involved e.g., in the planning process (1)	
	Women should be empowered to speak up and be opinionated (1)	
	C8: <i>“I can communicate more directly with boys, while I have to wrap it in more nicely when communicating with girls.”</i>	
	C2: <i>“With boys, I can be quite direct and straightforward. With girls, I must be a bit more careful, and maybe more pedagogical.”</i>	
	C6: <i>“Girls are, as said previously, more driven by emotions. Boys take a word for a word, and girls interpret more into it. As a coach I have to weigh the words more carefully when coaching girls.”</i>	
	C7: <i>“Female coaches would probably communicate more directly with female athletes.”</i>	
	C9: <i>“My experience is that girls want and need even more thorough and thoughtful communication around important choices in their training process. This is important to understand the girls' point of view, but also to create security around the implementation of training and in the competition settings. For me, this interaction has been an enrichment, and I have learned a lot from the athletes [...]. Through such processes, mutual respect is created between coach and athlete.”</i>	