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Medical Journal of Indonesia [Open Access](#)
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Milk protein consumption improves muscle performance and total antioxidant status in young soccer athletes: A randomized controlled trial (Article) [\(Open Access\)](#)

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Abstract

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BACKGROUND Muscle performance and antioxidant balance are closely related to an athlete achievement. Milk proteins (whey and casein) contain essential and non-essential amino acids, which benefit muscle performance through increased antioxidant levels. This study was aimed to evaluate the effects of milk protein on muscle performance and total antioxidant status (TAS) in soccer athletes. **METHODS** A randomized controlled trial was conducted on 20 males 16-to 18-year-old athletes at the Central Java Soccer Club in January 2018. For 28 days, the treatment group received 24 g/d of milk protein and the control group received 24 g/d of maltodextrin. Muscle performance was measured through a 20-m sprint, shuttle run, Illinois run, standing broad jump, sit-ups, push-ups, sit-and-reach test, and one-repetition maximum (1RM) leg extension. TAS was analyzed using the 2,2-azino-bis-3-ethylbenzothiazoline-6-sulfonic acid (ABTS) method. **RESULTS** The treatment group had a decreased shuttle run time (-0.16 [0.11] versus 0.08 [0.14] sec), greater increase in sit-ups (6.80 [2.57] versus 1.10 [2.84] times/60 sec), greater increase in push-ups (2.40 [1.78] versus 0.30 [1.77] times/60 sec), and greater increase in 1RM leg extension (32.00 [13.78] versus 3.50 [13.75] kg). After adjustments for age, energy intake, carbohydrates, and pre-interventional performance, these parameters remained significantly improved after the intervention of milk protein. The TAS increase was greater in the treatment group than in the control group (0.36 [0.32] versus -0.12 [0.20] mmol/l) before and after adjustment for age, vitamin C, iron, selenium intake, and TAS pre-treatment. **CONCLUSIONS** Milk protein supplementation for 28 days increased muscle performance and TAS. © 2020 Authors.

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MLH1 and MSH2 mismatch repair protein profile using immunohistochemistry in Nepalese colorectal cancer patients

Matrika Bhattarai,¹ Wan Khairunnisa Wan Juhari,^{2,3} Raju Lama,¹ Chin Bahadur Pun,⁴ Wardah Yusof,³ Wan Faiziah Wan Abdul Rahman,⁵ Andee Dzulkarnaen Zakaria,⁶ Khairul Bariah Ahmad Amin Noordin,⁷ Tilak R. Shrestha,¹ Bin Alwi Zilfalil^{2,3}



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ABSTRACT

BACKGROUND Hereditary nonpolyposis colorectal cancer, or Lynch syndrome, caused by germline mutations or genetic defects in mismatch repair (MMR) genes (*MLH1*, *MSH2*, *PMS2*, *MSH6*, and *epithelial cellular adhesion molecule*), is an autosomal dominant condition accounting for 2–5% of all colorectal carcinomas (CRCs). Reports on MMR loss in many populations are available; however, there are no reports on the frequency of MMR protein expression in Nepalese cohorts. Therefore, this study was aimed to assess the expression profiles of MLH1 and MSH2 protein by immunohistochemistry (IHC) in Nepalese CRC patients.

METHODS This retrospective study used archived formalin-fixed paraffin-embedded tissue blocks from 43 Nepalese CRC patients. IHC staining was performed using MLH1 and MSH2 antibodies. IHC scoring analysis was assessed using semiquantitative scoring.

RESULTS Of the 43 CRC patients, 8 (18.6%) showed loss of staining for MLH1 antibody, 5 (11.6%) showed loss of staining for MSH2 antibody, and 4 (9.3%) showed loss of staining for both MLH1 and MSH2 antibodies.

CONCLUSIONS IHC is a potential screening method of determining the MMR expression profile of Nepalese CRC patients. IHC can be performed in local clinical laboratories to find MMR protein defects in selected cases prior to expensive molecular tests.

KEYWORDS colorectal cancer, immunohistochemistry, mismatch repair, MutL homolog 1, MutS homolog 2

Colorectal cancer (CRC) is a common cancer in Nepal, and the majority of CRC patients are young adult Nepalese.¹ The rectum is the most common site, with incidents of right-sided colonic cancer increasing worldwide.¹ Sporadic disease has been commonly reported in CRC, but there is an underlying genetic component as well.² Hereditary nonpolyposis colorectal cancer (HNPCC), or Lynch syndrome, is a cancer syndrome that contributes to 5–10% of CRC cases. HNPCC is caused by a germline defect in at least one of

the five mismatch repair (MMR) genes: *MutL homolog 1 (MLH1)*, *MutS homolog 2 (MSH2)*, *MSH6*, *PMS1 homolog 2 (PMS2)*, and *epithelial cellular adhesion molecule*. Inherited mutation carriers have an increased tendency to developing HNPCC at an early age.³ DNA replication errors also cause mutation, which accumulates at simple repetitive sequences (microsatellites), or short tandem repeats, and leads to microsatellite instability (MSI).^{4,5} MSI is the mechanism underlying carcinogenesis in sporadic CRC, sporadic endometrial cancer, and

Improving a long-acting reversible contraception usage by understanding client perspectives

Weni Kusumaningrum,¹ Rita Damayanti,² John Douglas Storey,³ Fitra Yelda⁴



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ABSTRACT

BACKGROUND Despite the limited use of long-acting reversible contraception (LARC) in Indonesia, they have proven to be cost-effective in family planning programs. This study was aimed to identify the elements of ideas and views that people hold and their association with the use of LARC (intrauterine devices and implants) as a means of improving its utilization in Nusa Tenggara Barat (NTB) Province, Indonesia.

METHODS Data were derived from the Improving Contraceptive Mix Methods survey of 6,384 respondents in Bima District, Central Lombok, and North Lombok, NTB Province, in 2015. Confirmatory factor analysis was used to identify suitable elements of 19 variables and generate three ideation elements on attitude, knowledge, and interpersonal communication. Subsequently, the association of three ideation elements with LARC use in NTB was examined.

RESULTS Multivariate analysis revealed that LARC use was higher among women with a positive attitude toward LARC and high frequency of interpersonal communication. Women with positive attitudes had 7 times greater odds of using LARC than women with negative attitudes (adjusted odds ratio [aOR] = 7.18; 95% confidence interval [CI] = 6.09–8.55). Women with a high frequency of interpersonal communication were 2.4 times more likely to use LARC than women with low communication frequency (aOR = 2.40; 95% CI = 1.94–2.99).

CONCLUSIONS To increase the use of LARC in NTB, family planning programs should not only focus on improving women's knowledge but also prioritizing the promotion of positive attitudes toward LARC and facilitating interpersonal communication.

KEYWORDS contraception, long-acting reversible contraception

Contraceptive use in developing countries has reduced maternal mortality by 40% in the last 20 years by reducing unwanted pregnancies and improving child survival, especially by extending the pregnancy interval. Furthermore, the risk of infant mortality (ages <1 year) would fall by 10%, while in ages 1 to 4 years, the risk would drop to 21%, given space between siblings of two years.¹ Long-acting

reversible contraception (LARC) that includes intrauterine devices (IUDs) and implants have proven to be convenient for users and effective in preventing unwanted pregnancy. Over time, the use of LARC was also confirmed to be a cost-effective method in family planning programs and have fewer side effects than short-acting contraceptives, such as pills, injectable methods, and condoms.^{2,3}



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